Integrating Transit Data into State Highway Planning

Requested by
Scott Sauer, Caltrans Division of Mass Transportation

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The Caltrans Division of Research and Innovation (DRI) receives and evaluates numerous research problem statements for funding every year. DRI conducts Preliminary Investigations on these problem statements to better scope and prioritize the proposed research in light of existing credible work on the topics nationally and internationally. Online and print sources for Preliminary Investigations include the National Cooperative Highway Research Program (NCHRP) and other Transportation Research Board (TRB) programs, the American Association of State Highway and Transportation Officials (AASHTO), the research and practices of other transportation agencies, and related academic and industry research. The views and conclusions in cited works, while generally peer reviewed or published by authoritative sources, may not be accepted without qualification by all experts in the field.

Executive Summary

Background

Caltrans would like to integrate transit data into its processes for planning and managing the state highway system, which includes modeling, monitoring and traffic analysis. Much of the data necessary for this integration is collected not by Caltrans, but by various local and regional transit agencies that use different types of data and different analysis methods. The challenges for Caltrans are to access and integrate various data sources into planning and modeling activities as well as to identify measurements that can be used to evaluate transit impacts on the state highway system.

To help meet these challenges, Caltrans would like to review how other transportation agencies are collecting and using transit data to maintain multimodal systems, including what tools they are using to integrate this data.

To meet this request, we:

- Conducted a literature search on transit data integration practices nationwide and internationally, reviewing what kinds of transit data are used by state departments of transportation (DOTs) and other transportation agencies to measure system performance and plan future highway improvements, and what tools are used to integrate this data. We also examined the types of data collected for the National Transit Database (NTD), the State Controller's Office and information related to General Transit Feed Specifications that support traveler information systems such as Google Transit.
- Conducted a survey of the AASHTO Standing Committee on Public Transportation (http://scopt.transportation.org/Pages/default.aspx).
- Based on survey results, followed up with selected respondents to discuss their transit data integration processes, best practices and lessons learned.

Summary of Findings

Related Research and Guidance

We gathered information in four topic areas:

- Data Sources.
- Software and Tools.
- Data Integration.
- California-Related Research.

Following is a summary of findings by topic area.

Data Sources

Several studies illustrate how data from Google's General Transit Feed Specification (GTFS) can be integrated into planning:

- A November 2011 study explored the use of the GTFS to assist transit agencies with service planning and operations, and developed a web-based application that can display boardings and alightings along transit routes, which can provide useful information for enhancing transit services to meet ridership demands.
- A May 2011 study used GTFS along with walking and biking data from OpenStreetMap to develop a multimodal trip planning tool.

Software and Tools

- Florida DOT has developed a web-based system that integrates more than 20 years of NTD data and provides user-friendly tools designed to facilitate the access and analysis of transit performance data. This tool is part of the Florida Transit Information System (FTIS).

Data Integration

- A recent TRB Annual Meeting workshop reviewed the state of the practice in urban data integration and next steps in relevant research and practice including ongoing efforts on state, regional and local levels; public- and private-sector roles; and academic research with large-scale data integration system development and deployment.
- A 2009 report describes a plan for collecting and analyzing transit data to evaluate the impacts of transit projects on highway congestion, and a 2008 report includes guidance on incorporating transit and other multimodal strategies into developments of regional impact reviews (DRIs) conducted by Florida DOT staff to evaluate impacts on the state transportation system.

California-Related Research

- A 2007 report examines the state of the practice in California transit agencies for the use and sharing of data for operations monitoring, service planning, performance measurement and customer information. (See *Assessment of Information Systems and Technologies at California Transit Agencies* in **California-Related Research**.)

Survey and Interview Results

Our survey to members of the AASHTO Standing Committee on Public Transportation consisted of the following questions:

1. Does your agency integrate transit data from local and regional agencies into systems and processes for planning and managing the performance of the state highway system and the multimodal transportation system as a whole (including modeling, monitoring and traffic analysis)?

   If yes to 1:

2. What kinds of transit data and transit-related performance measures (e.g., routing, scheduling and ridership) do you use? What are the sources of this transit data?
3. What software, processes and other tools do you use to integrate transit data into your planning systems? How are they integrated?
4. How do you use the integrated data? What functions and decision-making processes are supported?

Staff at 15 state DOTs responded to this survey (see **Survey and Interview Results** beginning on page 12 of this report for the full text of these survey responses), and we obtained results for Indiana and Oregon by phone. We also attempted to contact representatives from Arizona, New Jersey, New York and Virginia DOTs by phone but were unable to reach them.

Of 17 respondents, four said they integrated transit data into state highway planning: Florida, Nevada, Ohio and Rhode Island. We conducted follow-up interviews with Florida and Ohio, but were unable to reach Rhode Island and Nevada. Key findings include:

- When it comes to integrating data, both Florida and Ohio have an engineer or contractor manually code transit agency information into a travel demand model. Both use the software application Cube for travel demand modeling.
- Florida uses ridership (passenger trips), passenger miles, vehicle miles, revenue miles and revenue hours to help to determine how well it meets statewide transportation plan and agency goals. Data sources include the NTD and local agency route, stop data, GTFS or GIS headways, automatic passenger count (APC), survey and scheduling data for transit modeling. Florida uses its custom FTIS to pull peer information and the NTD performance measure data. (For more information, see "System for Transit Performance Analysis Using the National Transit Database" in **Data Sources** and the Florida Transit Information System in **Software and Tools**.) These models are used to determine the best use of state resources guide policies, strategies and goals.
- Minnesota requests data from transit agencies individually for incorporation into a Twin Cities regional model (but does not include transit in its statewide model). It uses routing and ridership data to scope projects and traffic management plans for construction.
- Missouri does not use transit data to manage its state highway system, but collects and reports on transit data and uses it for managing grant programs.
- Nevada incorporates transit into modeling for urban areas.
- New Hampshire is integrating transit data into its performance management system, and will use ridership and fleet age as performance measures. Data sources will include the NTD and inventory data for state-owned buses.
- Ohio uses routing, scheduling, ridership, and park and rides for performance measures, and uses data from regional transit agencies (RTAs) or service providers. These models are used for planning transit-related projects.

- Rhode Island uses bus transit ridership data in its statewide model and uses TransCAD TDM software to run this model, which is used for multimodal system planning.

Gaps in Findings

- There seems to be a dearth of literature directly discussing the challenges of integrating transit data into planning for a state highway system as a whole. Most studies are focused specifically on transit forecasting without a view to broader impacts.
- Few states surveyed incorporate transit data into their state highway planning, and several states with large transit systems did not respond to the survey. We followed up with such states, including New York, by email and phone, but did not receive a response.
- We were unable to reach Nevada and Rhode Island—two of the few survey states to incorporate transit data into state highway planning—for follow-up interviews.

Next Steps

Moving forward, we recommend that Caltrans:

- Follow up with respondents from Nevada and Rhode Island about their transit data integration practices.
- Contact states with large transit systems that we were unable to reach within the scope of this Preliminary Investigation.
- Contact Karl Petty of Berkeley Transportation Systems concerning his work on urban data integration. (Dr. Petty gave a presentation on this subject at the recent TRB Annual Meeting. See Integrating Arterial, Transit, and Freeway Data for the Urban Environment in **Data Integration**.)
- Explore FTIS, which integrates more than 20 years of NTD data.

Contacts

During the course of this Preliminary Investigation, we spoke to or corresponded with the following individuals:

Florida
Diane Quigley
Transit Planning Administrator
Florida Department of Transportation
(850) 414-4520, diane.quigley@dot.state.fl.us

Indiana
Roy Nunnally
Director, Long Range Planning, Modeling and Traffic Counting Division
Indiana Department of Transportation
(317) 234-1692, rnunnally@indot.state.in.us

Ohio
Rebekah Straub Anderson
Office of Statewide Planning and Research
Ohio Department of Transportation
(614) 752-5735, rebekah.anderson@dot.state.oh.us

Oregon
Dinah Van Der Hyde
Transit Operations Manager
Oregon Department of Transportation
(503) 986-3885, dinah.vanderhyde@odot.state.or.us

Related Research and Guidance

Data Sources

General Transit Feed

General Transit Feed, Google Developers, 2012.
https://developers.google.com/transit/gtfs/
From the web site: The General Transit Feed Specification (GTFS) defines a common format for public transportation schedules and associated geographic information. GTFS feeds allow public transit agencies to publish their transit data and developers to write applications that consume that data in an interoperable way. … GTFS can be used to power trip planners, timetable publishers, and a variety of applications, too diverse to list here, that use public transit information in some way.

Related Resources:

> **Example GTFS Feed**, Google Developers, 2012.
> https://developers.google.com/transit/gtfs/examples/gtfs-feed
> GTFS feeds consist of comma-delimited text files for such data as stops, routes, trips and other schedule data. An example of a GTFS feed is shown on this web page.
>
> **General Transit Feed Specification Reference**, Google Developers, 2012.
> https://developers.google.com/transit/gtfs/reference
> This guide provides more information about the types of files in a GTFS transit feed and defines the fields used in those files.
>
> **GoogleTransitDataFeed**, Google Project Hosting, undated.
> http://code.google.com/p/googletransitdatafeed/wiki/PublicFeeds
> A listing of publically available transit feeds is provided.

"How Google and Portland's TriMet Set the Standard for Open Transit Data," SFStreetsBlog.org, January 5, 2010.
http://sf.streetsblog.org/2010/01/05/how-google-and-portlands-trimet-set-the-standard-for-open-transit-data/
This article describes the origins of the GTFS (formerly the Google Transit Feed Specification) and Google's cooperation with Portland's TriMet public transportation agency to develop the specification.

"Welcome to Google Transit: How (and Why) the Search Giant is Remapping Public Transportation," *Community Transportation*, 2012: 20-29.
http://web1.ctaa.org/webmodules/webarticles/articlefiles/Spring_12_DigitalCT_Google_Transit.pdf
This article includes examples of ways in which the GTFS has been used to create applications for San Francisco's Bay Area Rapid Transit (BART) system and for Portland's transit agency, TriMet.

Expanding the Google Transit Feed Specification to Support Operations and Planning, National Center for Transit Research, November 2011.
Final Report: http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BDK85_977-15_rpt.pdf
Summary: http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BDK85_977-15_sum.pdf
This project investigated using the GTFS to further assist transit agencies with business activities, such as service planning and operations. Researchers first conducted interviews in transit agencies to see how GTFS data was being used. They then created and deployed a prototype application that integrated GTFS data with APC data. This web-based application can be used by transit agencies to display boardings and alightings along transit routes during specific times of day. Researchers deployed the prototype on a test web site using transit data for selected routes in San Diego (http://ridership.transitgis.org/). Users were able to choose a route and see its map and its stops. They were also able to select from a variety of graphs and tabulations displaying ridership statistics and characteristics aggregated in different ways, for example, by route, stop or trip. For the majority of transit systems, which do not have highly integrated information systems or substantial IT resources, the prototype application can provide useful information for decision makers in adjusting and enhancing transit services to meet ridership demands.

Enabling Cost-Effective Multimodal Trip Planners Through Open Transit Data, National Center for Transit Research, May 2011.
Final Report: http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BDK85_977-20_rpt.pdf
Summary: http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BDK85_977-20-sum.pdf
This study examined whether a multimodal trip planner can be developed using open-source software and open data sources, including OpenStreetMap (OSM) and Google's GTFS (used by more than 125 public transportation agencies in the United States). The research team evaluated the use of OpenTripPlanner, an open-sourced multimodal trip planning software system, for routing in Tampa, FL, using OSM biking and walking data and GTFS transit data. The study team also recorded multimodal data for the Tampa region in OSM to examine the current OSM coding conventions and determine the coding system's ability to support functions required of a multimodal trip planner, such as providing information about access to transit, wheelchair accessibility or conditions that could affect the safety of a trip (e.g., intersection crossings).

The research team created GTFS-OSM-Sync (GO_Sync), a framework and open-source software tool for synchronizing transit data between the transit agency's official GTFS dataset and OSM. GO Sync connects the wealth of data from GTFS datasets to the ability of the OSM community to augment and improve the data. During a test deployment of GO_Sync in Tampa, OSM users corrected 173 bus stop locations. The project demonstrated that it is feasible to implement a multimodal trip planner using open-source software and open data sources.

Evaluation of Software Solutions for Transit Scheduling and Data Integration, University of Texas at Austin, November 2002.
http://www.utexas.edu/research/ctr/pdf_reports/1884_2.pdf
From the report: The primary goals of this project are to investigate the technical problems associated with integrating data from several external agencies, and to recommend (1) an existing commercially available dispatching and scheduling system that can be used by all Texas paratransit systems and (2) implement improvements for the transit agencies and their external partners that will enable them to realize the full benefits of the new system.

National Transit Database

National Transit Database
http://www.ntdprogram.gov/ntdprogram/
The NTD was established by Congress to serve as the nation's primary source for information and statistics about U.S. transit systems. It collects annual transit performance and financial data, monthly ridership data, and safety and security data that are summarized in annual reports.

"System for Transit Performance Analysis Using the National Transit Database," *Journal of Public Transportation*, Vol. 14, No. 3, 2011: 87-107.
http://www.nctr.usf.edu/wp-content/uploads/2011/10/JPT14.3Gan.pdf
From the article: This paper introduces a web-based system that integrates over 20 years of NTD data and provides user-friendly tools designed to facilitate the access and analysis of transit performance data. … The system is useful for both practitioners and researchers who use the NTD data to improve transit performance and services.

Software and Tools

The Integrated National Transit Database Analysis System, Florida Department of Transportation.
http://www.ftis.org/intdas.html
From the web site: Each year, more than 600 of the nation's transit agencies report data to the Federal Transit Administration (FTA) for inclusion in the National Transit Database (NTD) … which includes data on transit organization characteristics, vehicle fleet size and characteristics, revenues and subsidies, operating and maintenance costs, safety and security, vehicle fleet reliability and inventory, and services consumed and supplied. These data have been used extensively to derive values for transit performance measures and have become the sole source of standardized and comprehensive data for use by all constituencies of the transit industry.

… The current version of [the Integrated National Transit Database Analysis System (INTDAS)] integrates the 1984-2010 NTD data for all transit systems reported to the NTD program and provides customized tools for easy data retrieval, visualization, analysis, and transfer.

Note: INTDAS is a component of FTIS.

Florida Transit Information System, Florida Department of Transportation, 2011.
http://www.ftis.org/index.html
From the web site: The Florida Transit Information System (FTIS) is a user-friendly software system designed specifically for transit planning applications. The current version of FTIS includes the following three major system components:

- Integrated National Transit Database Analysis System (INTDAS): A web database system designed for the retrieval and analysis of the 1984-2010 National Transit Database (NTD).
- Florida Transit Geographic Information System (FTGIS): A stand-alone web GIS system customized for the planning of Florida's transit systems.
- Automated Transit Stop Inventory Model (ATSIM): A hybrid mobile-desktop system for the collection, analysis, and maintenance of transit stop inventories.

FTIS has become a major software tool for the transit industry, with many users from across the country.

TransCAD, Caliper Corporation, 2012.
http://www.caliper.com/TCTravelDemand.htm#.T-I4irVYurk
TransCAD is travel demand software commonly used by transportation agencies (including Caltrans: http://www.dot.ca.gov/hq/tsip/microsim/). It includes GIS-based representations of transit systems, and

can place transit routes directly on streets so that interactions between autos and transit can be treated explicitly.

Arterial Performance Measurement in the Transportation Performance Measurement System (PeMS), Berkeley Transportation Systems, Inc., May 2011.
http://www.mtc.ca.gov/services/arterial_operations/downloads/pems_arterials_2011_05_10_v3.pdf
This presentation describes the Arterial Performance Measurement in the Transportation Performance Measurement System (PeMS), which includes transit data tools such as passenger count and automatic vehicle location (AVL) integration, on-time performance, loading analysis and travel times.

Related Resources:

> **The Promise of PeMS (Performance Monitoring System)**, National Transportation Operations Coalition, October 2002.
> http://www.ntoctalks.com/icdn/pems_wolf.php
> *From the web site:* After several years of development and evaluation by early users, PeMS (Performance Measurement System), developed by the University of California at Berkeley for Caltrans, is nearly "ready for prime time." PeMS can potentially become a mainstream transportation system performance analysis tool for a wide variety of different users within Caltrans, including district managers, planners, and operations staff.
>
> **Performance Measurement System (PeMS)**, Caltrans, 2012.
> http://pems.dot.ca.gov/
> PeMS integrates a wide variety of information from Caltrans and other local agency systems.

Data Integration

Integrated Corridor Management, Intelligent Transportation Systems Joint Program Office, U.S. Department of Transportation Research and Innovative Technology Administration, undated.
http://www.its.dot.gov/icms/icm_awarded.htm
From the web site: The primary objective of the Integrated Corridor Management (ICM) Initiative is to demonstrate how innovative transportation strategies and Intelligent Transportation Systems (ITS) technologies can efficiently and proactively facilitate the movement of people and goods through major metropolitan transportation corridors … using the integrated, dynamic management of freeway, arterial, transit, and parking systems within a corridor with ITS technologies and innovative practices or strategies.

Integrating Arterial, Transit, and Freeway Data for the Urban Environment, Transportation Research Board 91st Annual Meeting, 2012.
http://pressamp.trb.org/conferenceinteractiveprogram/PresentationDetails.aspx?ID=51301
http://amonline.trb.org/2137jc/2
From the web site: With the explosion of numerous new transportation data sources and data collection technologies, data integration issues are of crucial importance. This workshop reviews the state of the practice in urban data integration and next steps in relevant research and practice including ongoing efforts on state, regional, and local levels; public- and private-sector roles; and academic research with large-scale data integration system development and deployments.

Minnesota Urban Partnership Agreement—National Evaluation: Transit System Data Test Plan, U.S. Department of Transportation, 2009.
http://ntl.bts.gov/lib/32000/32500/32523/transitupa.pdf
From the abstract: This report presents the test plan for collecting and analyzing transit system data for the Minnesota Urban Partnership Agreement (UPA) National Evaluation under the United States Department of Transportation (U.S. DOT) UPA Program. The Minnesota UPA projects focus on reducing

congestion by employing strategies consisting of combinations of tolling, transit, telecommuting/TDM, and technology, also known as the 4 Ts. This test plan is based on the Minnesota UPA National Evaluation Plan. It presents the sources for obtaining the data needed to evaluate the impacts of the Minnesota UPA transit projects, the data availability, and the risks associated with collecting and analyzing the data. The data analysis techniques are described and the schedule and responsibilities are presented.

Integrated Corridor Management: Analysis, Modeling and Simulation (AMS) Methodology, Cambridge Systematics, Inc., March 2008.
http://ntl.bts.gov/lib/jpodocs/repts_te/14414_files/14414.pdf
From the abstract: This AMS Methodologies Document provides a discussion of potential ICM analytical approaches for the assessment of generic corridor operations. The AMS framework described in this report identifies strategies and procedures for tailoring AMS general approaches toward individual corridors with different application requirements and modeling characteristics.

Guidelines and Performance Measures to Incorporate Transit and Other Multimodal Considerations into the FDOT DRI Review Process, National Center for Transit Research, August 2008.
http://www.nctr.usf.edu/pdf/77703.pdf
This report includes guidance on incorporating transit and other multimodal strategies into developments of regional impact (DRIs) reviews conducted by Florida DOT staff to evaluate impacts on the state transportation system. Other transportation planning partners such as regional planning councils, metropolitan planning organizations (MPOs), local governments, transit authorities and agencies, transportation management associations and the development community may find these guidelines useful in the development review process.

Review of and Preliminary Guidelines for Integrating Transit into Transportation Management Centers, Federal Highway Administration, July 1994.
http://ntl.bts.gov/lib/jpodocs/repts_te/2826.pdf
This study reviews transportation management centers to assess their integration of transit, including the impacts of public transportation on traffic flow.

Related Resource:

"Information Requirements for an Integrated Transit/Traffic Management and Traveler Information System," *IVHS Journal*, Vol. 1, Issue 2, 1993: 167-180.
http://www.tandfonline.com/doi/abs/10.1080/10248079308903790
From the abstract: This paper documents the assessment of the information requirements for the development of an Integrated Transit/Traffic Management and Traveler Information System. The identification of information requirements represents one of several phases of the information gathering process which was necessary to evaluate the suitability of available technologies, IVHS elements, and architectures for the design of an operational test of the integration of transit and traffic management and traveler information system. The integration design includes the automated transfer of operations and management information between agencies and to the public in order to realize efficiencies in the transportation network. The paper details the information requirements of three public agencies involved in transportation management together with transportation information requirements of the traveling public. Availability of the required data is assessed and existing and potential data sources are identified.

California-Related Research

Stream Traffic Data Archival, Querying, and Analysis with TransDec, University of Southern California, Los Angeles, January 2011.
http://www.metrans.org/research/final/10-13_Shahabi_final.pdf
From the abstract: The goal of this research was to extend the traffic data analysis of the [Transportation Decision-Making (TransDec)] system, which … is a real-data driven system to support decision-making in transportation systems. … [We performed] three tasks. First, we developed new techniques to create a streaming data archival repository that supports continuous querying and analysis of the vast amount of California transit data from RIITS (Regional Integration of Intelligent Transportation Systems) generated in the form of data streams. Second, we extended the current data-tier of TransDec to a distributed design to enable more scalable and stable computing environment. Finally, to demonstrate the benefits of the archived traffic datasets, we presented a novel proof-of-concept application, namely time-dependent optimal sequenced route (TD-OSR) planner using congestion prediction. This application exploits a subset of the real-world RIITS datasets, and [we are] evaluating the ways to make it available for public use.

Public Transit in California: Existing Conditions and Current Practices, University of California Transportation Center, 2010.
http://www.dot.ca.gov/hq/MassTrans/STSP/Transit_in_CA_slides_finaldraft.pdf
Slide 17 provides common performance measures used by California transit agencies.

San Diego I-15 Integrated Corridor Management (ICM) System: Stage II (Analysis, Modeling, and Simulation), California PATH Program , Institute of Transportation Studies, University of California, Berkeley, March 2010.
http://www.path.berkeley.edu/PATH/Publications/PDF/PRR/2010/PRR-2010-09.pdf
This report provides background about efforts to date of the U.S. DOT ICM system program for the Interstate 15 corridor in San Diego County, CA, one of eight sites selected to participate in the U.S. DOT ICM program. The program's goal is to counteract the effects of increasing congestion area on freeways, arterials and the public transit network. The report describes the decision support system that will eventually be able to generate suggested action plans in response to regional events such as daily recurring peak hour traffic, planned football games or unexpected situations such as firestorms that disrupt traffic.

Study of Integrated Corridor Management for San Francisco Bay Area I-880 Area Corridor, California PATH Program, Institute of Transportation Studies, University of California, Berkeley, November 2008.
http://www.path.berkeley.edu/PATH/Publications/PDF/PRR/2008/PRR-2008-30.pdf
The I-880 corridor in the San Francisco Bay Area is a multimodal corridor that includes a robust freeway network, major arterials carrying high volumes of local traffic, a rail and bus transit network, and heavy freight traffic. This report summarizes the findings of three studies dealing with the I-880 ICM program. The three studies focused on the concept of operation; sample data for analysis, modeling and simulation; and system requirements.

"Assessment of Information Systems and Technologies at California Transit Agencies," Transportation Research Record, January 18, 2007 (online).
http://trb.metapress.com/content/m84458743850262h/
This report examines the current state of the practice in California transit agencies for the use and sharing of data for operations monitoring, service planning, performance measurement and customer information. Researchers conducted a broad survey of transit agencies in California, followed by detailed site visits and interviews with several representative agencies. They reviewed the current means of data collection, processing and dissemination, and identified strategies for the application of new information systems and

technologies. They also reviewed the technical and institutional environments for data sharing both within a transit agency and between the transit agency and other organizations.

Survey and Interview Results

The full text of each survey response is provided below. Some responses have received minor edits for clarity. For reference, we have included an abbreviated version of each question before the response; for the full question text, please see page 3 of this report.

Alabama

1. **Transit data integration?** No. Unfortunately, the Alabama Department of Transportation currently does not integrate transit data from local and regional agencies into systems and processes for planning and managing the performance of the state highway system or the multi-modal transportation system as a whole.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Joe Nix, Senior Transportation Planner, Bureau of Transportation Planning and Modal Programs, (334) 353-6421, nixj@dot.state.al.us.

Colorado

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Eric Ellis, Transit Manager, Division of Transit and Rail, (303) 757-9766, eric.t.ellis@dot.state.co.us.

Florida

1. **Transit data integration?** Yes.

2. **Data types, sources and performance measures?** We use ridership (passenger trips), passenger miles, vehicle miles, revenue miles and revenue hours to assist in [determining] how well we meet statewide transportation plan and agency goals. We use ridership data to validate transit ridership models. We also use some measures for peer reviews of similar transit agencies during the Transit Development Plan process. Data sources and types: National Transit Data for performance. NTD and local agency route, stop data, (GTFS or GIS) headways, APC, survey and scheduling data for transit modeling.

3. **Software, processes and tools?** We use our Florida Transit Information System (http://www.ftis.org/index.html) to pull peer information and NTD performance measure data. These measures, along with other transit agency data, are used to validate our transit ridership model TBEST (Transit Boardings Estimation and Simulation Tool, http://tbest.org/).

4. **Supported functions?** To determine the best use of state resources, guide policy development, creating or refining statewide goals and strategies, local agency goal and policy development, allocation of local transit agency resources in expanding existing services or develop new services.

5. **Respondent:** Diane Quigley, Transit Planning Administrator, (850) 414-4520, diane.quigley@dot.state.fl.us.

Follow-up call: Ms.Quigley noted that the FTIS brings in NTD data and makes it more accessible and searchable. Using a contractor to import the data, Florida DOT uses the information for statewide monitoring of plans, and focuses primarily on ridership. Florida is trying to integrate its Transit Boardings Estimation and Simulation Tool (http://tbest.org/) with its travel demand model (for which it uses Cube) to see shifts from one travel mode to another. Ms. Quigley noted that Florida's forecasting for transit is an area that needs improvement and that Florida DOT is actively working on this. It is also exploring the use of APC data and AVL data.

Idaho

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Randy Kyrias, Administrator, Division of Transportation Performance, (208) 334-8281, randy.kyrias@itd.idaho.gov.

Illinois

1. **Transit data integration?** No. There is no use of transit data in highway design. In fact most of the highway folks do not even know we have a transit division.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** David Spacek, Deputy Director of Transit, (312) 793-2154, david.spacek@illinois.gov.

Indiana

Results obtained by phone.

1. **Transit data integration?** No. Indiana has a statewide model that incorporates long distance bus trips from carriers like Greyhound.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Roy Nunnally, Director, Long Range Planning, Modeling and Traffic Counting Division, (317) 234-1692, rnunnally@indot.state.in.us.

Minnesota

1. **Transit data integration?** No. Overall, MnDOT does not integrate transit data from local and regional agencies. The Twin Cities regional model does incorporate current and planned transit service and transitways into the background of forecasts.

2. **Data types, sources and performance measures?** In the Minneapolis and St. Paul area, when expanding the Bus Shoulder Network, MnDOT does verify the new segments have a minimum number of buses as part of the qualification process with the transit agencies. Also in the Minneapolis and St. Paul area, the Metropolitan Council (the area MPO) looks at developing corridors for possible implementation of BRT or expanding the MnPASS (High Occupancy Toll) lanes. The transit data MnDOT uses is mainly routing data and occasionally ridership data. This information is requested from the transit agencies by email or through the area interactive web site.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** This information is used on the scoping process for the development of projects and traffic management plans for construction.

5. **Respondent:** Mike Schadauer, Office of Transit, (651) 366-4161, mike.schadauer@state.mn.us.

Missouri

1. **Transit data integration?** No. The Missouri Dept. of Transportation (MoDOT) does not currently use transit data to manage the state highway system.

2. **Data types, sources and performance measures?** We do collect, measure and report on modal data from transit, aviation, railways and waterways activities, but that data is not integrated into highway system management.

3. **Software, processes and tools?** You can view MoDOT's quarterly updated *Tracker* performance measures at the following link: http://www.modot.org/about/Tracker.htm. The transit and other modal *Tracker* data can be viewed by clicking on the link for the chapter titled, "Easily Accessible Modal Choices."

   In addition to the department-wide transportation performance measures, link above, the Multimodal Operations Division also tracks detailed modal measures. The January division *Tracker* (D-Tracker) for MoDOT's Multimodal Operations Division is attached. (See Appendix A.)

4. **Supported functions?** All of this modal data is useful in managing the grant programs administered by MoDOT's Multimodal Operations Division, but as stated before, this data has not been used to manage the state highway system.

5. **Respondent:** Steve Billings, Multimodal Operations, Transit Section, steven.billings@modot.mo.gov.

Nevada

1. **Transit data integration?** Yes. NDOT uses the MPO's modeling in the urban areas and they incorporate transit into their models. There are only 4 urban areas in this entire state. My section only oversees transit funding for the rural areas of the state. Most of our sub-recipients operate demand response services in very remote areas of the state. I don't do any transit modeling for the demand response services in these areas.

2. **Data types, sources and performance measures?** No response.

3. **Software, processes and tools?** No response.

4. **Supported functions?** No response.

5. **Respondent:** Michelle Gardner, Transit Manager, (775) 888-7312, mgardner@dot.state.nv.us.

New Hampshire

1. **Transit data integration?** No. Our Department has initiated a Balanced Scorecard performance management system, that will include some transit information, but it is not in place yet.

2. **Data types, sources and performance measures?** We plan to use a) ridership and b) fleet age (specifically, remaining useful life of vehicles). We hope to be able to use NTD data and inventory data the state maintains for state-owned buses.

3. **Software, processes and tools?** None yet.

4. **Supported functions?** N/A.

5. **Respondent:** Chris Morgan, Rail & Transit, (603) 271-2468, cmorgan@dot.state.nh.us.

New Mexico

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** David Harris, davidc.harris@state.nm.us.

Ohio

1. **Transit data integration?** Yes. Data from all transit agencies are collected, as required. Data from RTAs that are within [an] MPO are collected at a more detailed level and are used for planning purposes. Route data from intercity bus, rail and air are also collected and used.

2. **Data types, sources and performance measures?**
   - MPO Level—Routing, scheduling, ridership and park and rides are all collected for all fixed route systems. Routes are coded into the regional travel demand models and ridership is validated on a daily basis, by route and route groups. Paratransit is not analyzed.
   - Statewide Level—MPO transit systems are coded into the statewide travel demand model on a generalized level. Amtrak, Greyhound and MegaBus are coded according to schedule, but are not validated as ridership data are not available. Air travel is coded and validated according to the FAA 10% ticket sample. Intercity transit is only analyzed on an Internal-Internal basis.
   - These data come from their respective RTAs or service providers, with the exception of the FAA 10% air ticket sample.

3. **Software, processes and tools?** Travel Demand Models are in Cube. When studying high-speed passenger rail, a COMPASS model (from TEMS) was also used. FTA's ARRA model has also been used to evaluate new Commuter Rail service.

4. **Supported functions?** The data in the travel demand models are used for transit related planning projects such as New Starts (Heavy/Light Rail extension, New Fixed Guideway (LRT/BRT)), High-Speed Passenger Rail analysis, bus service frequency/routing changes, and transit's effect on Air Quality conformity.

5. **Respondent:** Rebekah Straub Anderson, Office of Statewide Planning and Research, (614) 752-5735, rebekah.anderson@dot.state.oh.us.

Follow-Up Call: Ms. Straub noted that California already uses transit data in itsMPO models and collects similar data to Ohio for high-speed rail. ODOT is very data-focused and conducts a lot of data analysis. Its travel demand model includes socioeconomic, transportation network and transit data. Many states do not need to include transit in their statewide models, but like California, Ohio does. Ohio DOT inputs a representation of transit network routes as well as long distance bus travel (such as Greyhound) and some airline information. Ohio DOT gets data from transit agency web sites, and an engineer codes it into the model on a regular basis. Like Caltrans, Ohio DOT uses Cube (http://www.citilabs.com/products/cube) for its travel demand model. Ms. Quigley noted that what Ohio DOT does in this regard is pretty standard, and Caltrans uses the same sorts of models.

Oregon

Results obtained by phone.

1. **Transit data integration?** No. We do have a model that incorporates transit at a high level, but it's not used for performance management.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Dinah Van Der Hyde, Transit Operations Manager, (503) 986-3885, dinah.vanderhyde@odot.state.or.us.

Rhode Island

1. **Transit data integration?** Yes.

2. **Data types, sources and performance measures?** No response.

3. **Software, processes and tools?** RI has incorporated bus transit into our statewide model, and basically uses ridership data provided by the Rhode Island Public Transit Authority (RIPTA). We use TransCAD TDM software to run our model and integrate the transit routes and data into the traditional 4 step modeling process.

4. **Supported functions?** RIDOT monitors commuter rail ridership on the service between Boston to Providence, TF Green Airport and Wickford Junction stations. We use this for performance measures as part of our multi-modal system planning.

5. **Respondent:** Steve Devine, sdevine@dot.ri.gov.

South Dakota

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Bruce Lindholm, bruce.lindholm@state.sd.us.

Vermont

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** N/A.

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Barbara Donovan, Public Transit Administrator, (802) 828-2828, barbara.donovan@state.vt.us.

Wyoming

1. **Transit data integration?** No.

2. **Data types, sources and performance measures?** As a very rural state with few capacity issues, we look at the transit system more of an equity issue to try to ensure access to mobility. As part of that, we incorporate into the planning the distances people have to travel to access inter-region public transportation. This is at a high level, therefore from a population center how far is it to an interstate bus stop and how can they get there?

3. **Software, processes and tools?** N/A.

4. **Supported functions?** N/A.

5. **Respondent:** Martin Kidner, martin.kidner@wyo.gov.

APPENDIX A

January 2012

Multimodal Operations

Division Tracker Performance Report

Tracker

VALUE STATEMENTS

MoDOT -

- supports and develops employees because we believe they are the key to our success.
- is flexible because we believe one size does not fit all.
- honors our commitments because we believe in integrity.
- encourages risk and accepts failure because we believe in getting better.
- is responsive and courteous because we believe in delighting our customers.
- empowers employees because we trust them to make timely and innovative decisions.
- does not compromise safety because we believe in the well-being of employees and customers.
- provides the best value for every dollar spent because we're taxpayers too.
- values diversity and inclusiveness because we believe in the power of our differences.
- is one team because we all share the same mission and teamwork produces the best results.
- fosters an enjoyable and productive workplace because we care about each other and our mission.
- is open and honest because we must be trustworthy.
- listens and seeks to understand because we value everyone's opinion.
- treats everyone with respect because we value their dignity.
- seeks out and welcomes any idea that increases our options because we don't have all the answers.
- always strives to do our job better, faster, and cheaper because we want to meet more of Missouri's needs.

Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri.

MoDOT

Tangible Results

- Uninterrupted Traffic Flow
- Smooth and Unrestricted Roads and Bridges
- Safe Transportation System
- Roadway Visibility
- Outstanding Customer Service
- Partner With Others to Deliver Transportation Services
- Advance Economic Development
- Innovative Transportation Solutions
- Fast Projects That Are of Great Value
- Environmentally and Socially Responsible
- Efficient Movement of Goods
- Easily Accessible Modal Choices
- Customer Involvement in Transportation Decision-Making
- Accommodating Roadsides
- Best Value for Every Dollar Spent
- Advocate for Transportation Issues
- Proactive Transportation Information

Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri.

MoDOT

Multimodal Operations Division Tracker Table of Contents

Uninterrupted Traffic Flow

Number of Ferry Passengers and Vehicles Transported

Result Driver: Michelle Teel, Multimodal Operations Director
Measurement Driver: Sherrie Turley, Waterways Program Manager

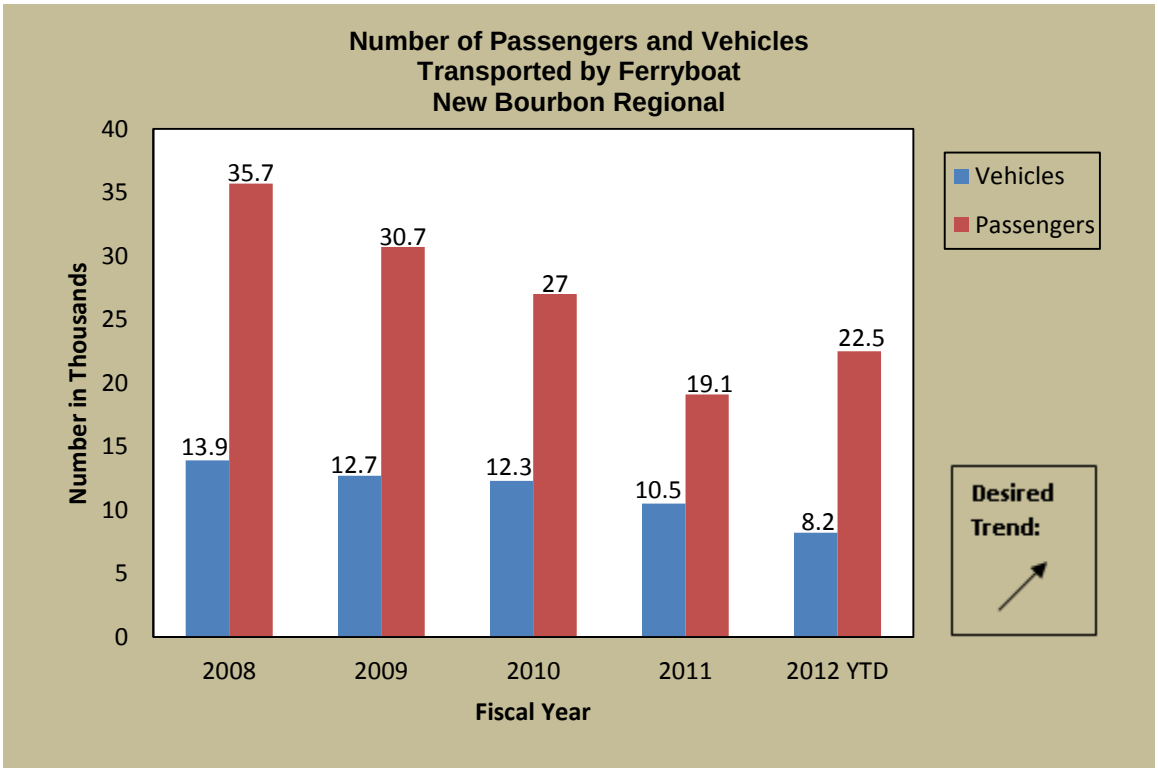
Purpose of the Measure:
This measure tracks information regarding ferryboat service in Missouri.

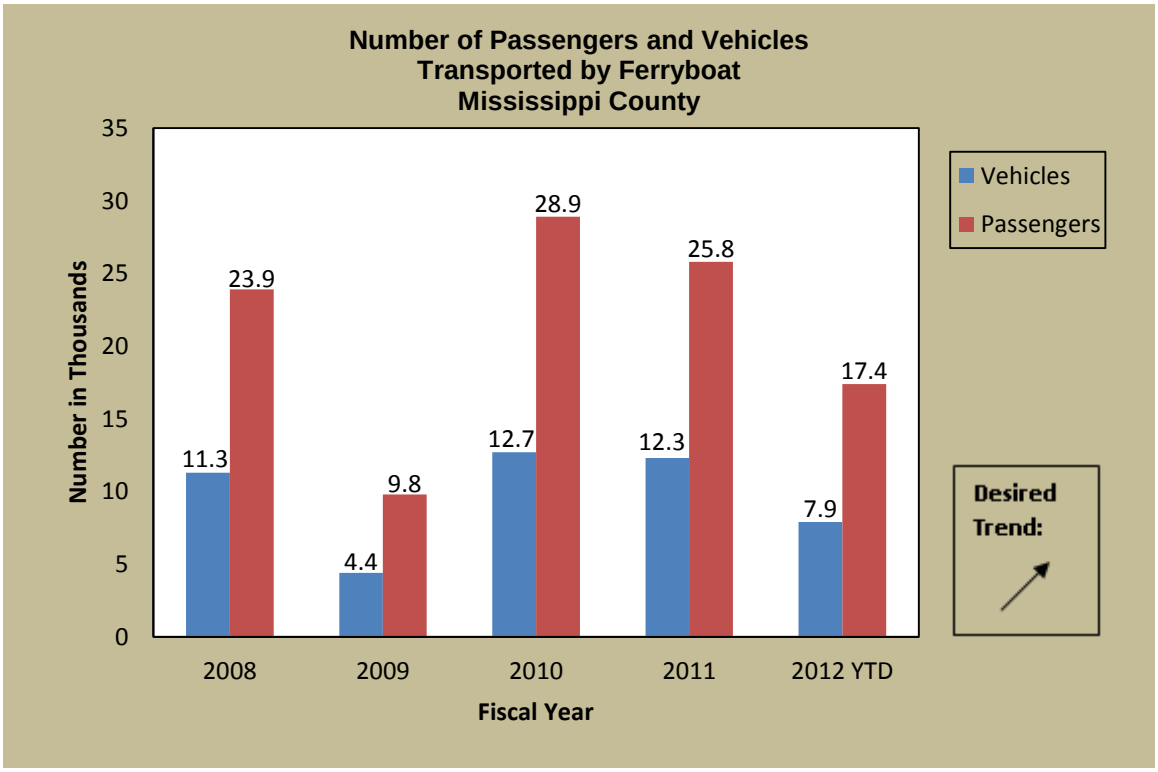
Measurement and Data Collection:
The two ferry services owned and operated by public port authorities in the state submit a monthly report that includes information on the number of passengers and vehicles transported, the cost for providing the service, and the reasons for any service disruption. This measure is updated on a quarterly basis.

Improvement Status:
The New Bourbon Ferry is having a very good year. In fiscal-year 2011 the service was closed for several weeks due to high water and only operated a total of 262 days. During the first half of fiscal-year 2012, the service has operated 174 days and has already surpassed the previous year total for passengers. The service is on track to have their best year since 2006.

Mississippi County ferryboat operated 274 days in fiscal-year 2011 and has operated 139 in the first half of fiscal year 2012. Flooding in the area caused a service interruption for several weeks in both fiscal years. Ridership to date indicates that fiscal-year 2012 will be similar to 2011.

The Mississippi County ferryboat closed in mid-November to replace the engines. The service will reopen in mid-January. The service also has a new, larger barge being constructed at this time. It should be complete and in service by mid-March. The engine replacement is being funded from ARRA funds, Rural Development funds and State of Missouri and State of Kentucky matching funds. The new barge is also being funded with ARRA funds.




Number of Passengers and Vehicles
Transported by Ferryboat
Mississippi County
Number in Thousands
35
30
25
20
15
10
5
0
11.3
23.9
4.4
9.8
12.7
28.9
12.3
25.8
7.9
17.4
2008
2009
2010
2011
2012 YTD
Fiscal Year
Vehicles
Passengers
Desired
Trend:

Smooth and Unrestricted Roads and Bridges

Percent of Airport Runway Pavements in Good Condition

Result Driver: Multimodal Operations Aviation Administrator
Measurement Driver: Liz Duvall, Aviation Programs Manager

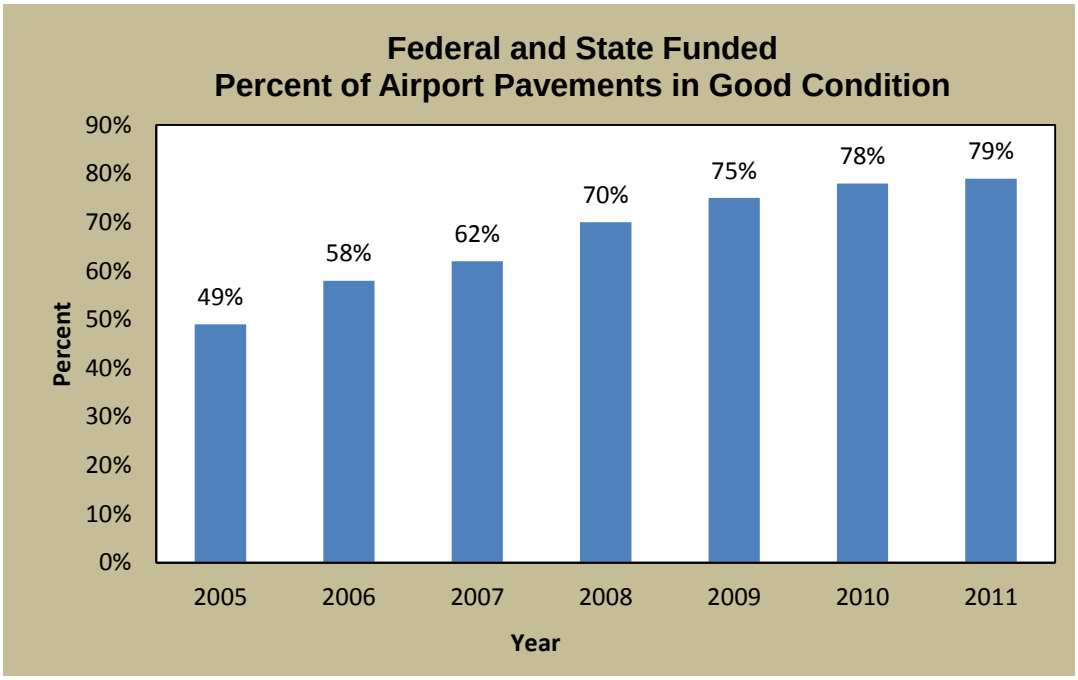
Purpose of the Measure:
This is an annual measure. The measure tracks the percent of all paved runways in good condition at airports that are eligible and receive federal or state aviation funds.

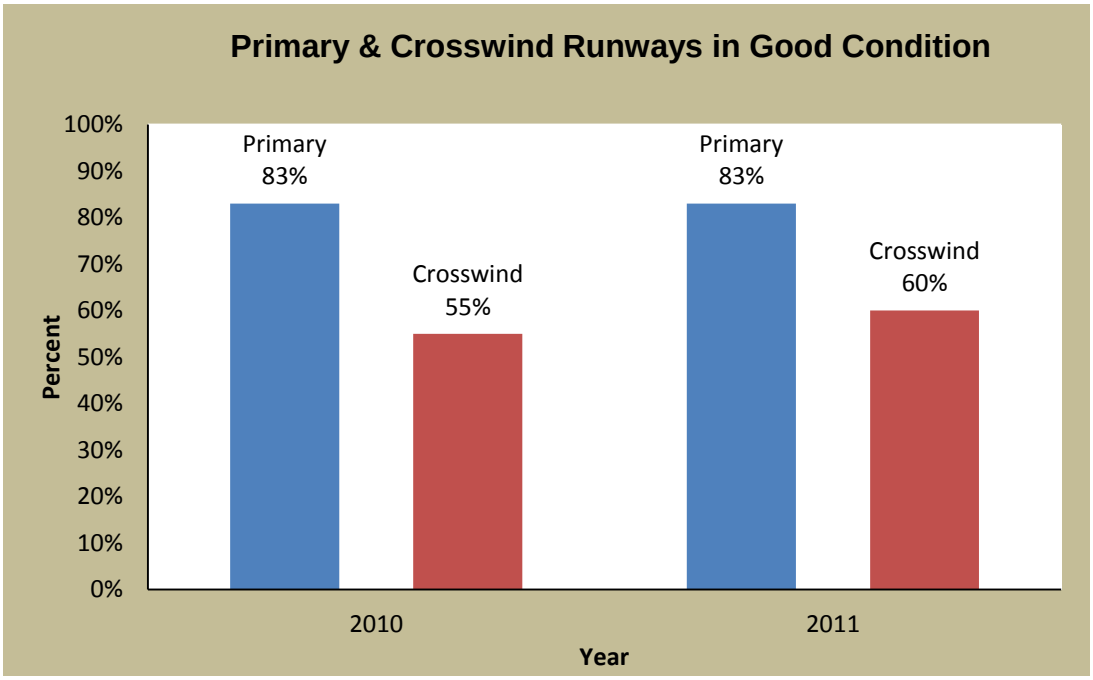
Measurement and Data Collection:
The data was extracted from the Federal Aviation Administration's (FAA) Airport Data Website for 2005 through 2011. The inspections are conducted once every three years per airport, thus one-third (39 of 117) of the General Aviation (GA) airports are inspected each year. The 5010 Inspection Report categorizes the runway surface condition as Good, Fair, or Poor. This runway condition report is used to program state and federal funds for pavement maintenance projects. Table 1 is a six year summation of the 130 hard surface runways in Missouri in good condition that are eligible for federal and/or state funding. Table 2 distinguishes between primary and secondary runways. Secondary runways account for 20 out of the 130 runway pavements and are used less frequently than primary runways. Table 3 shows a breakdown of the good runway pavements by funding source.

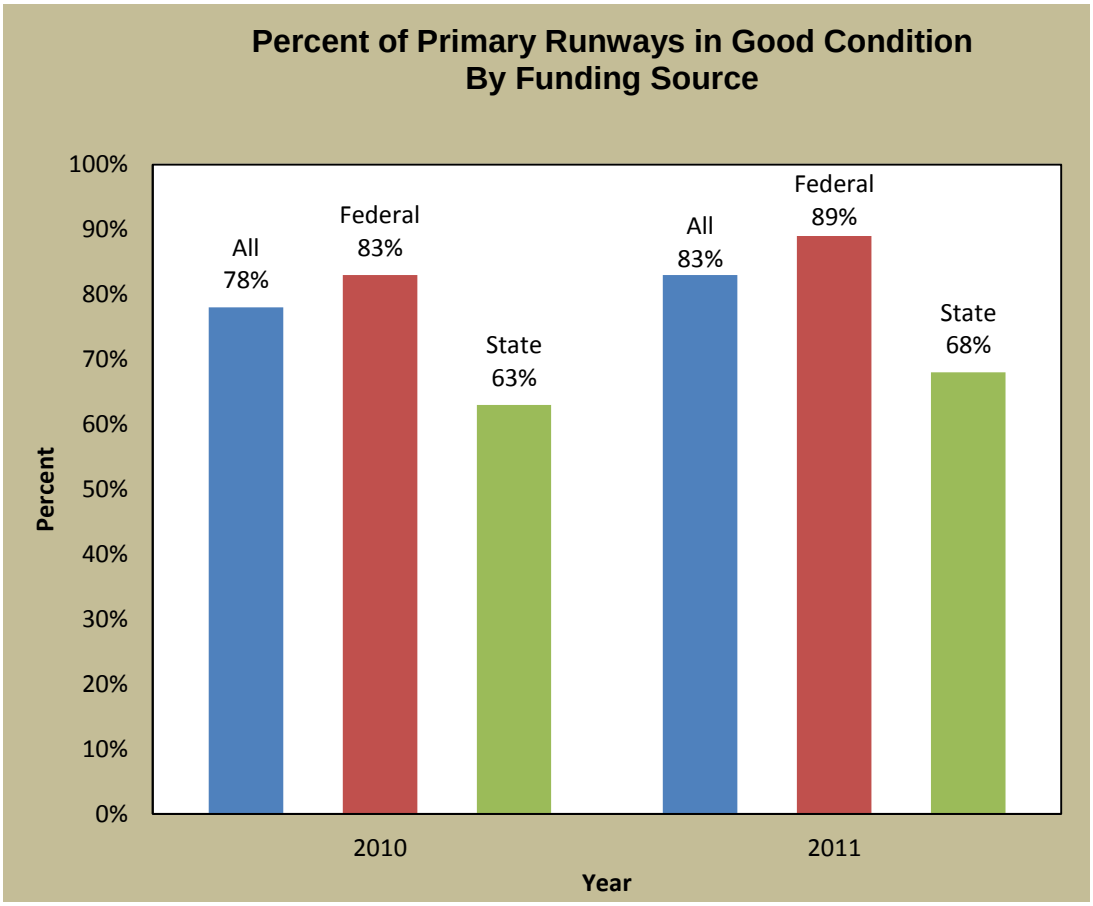
Improvement Status:
The desired trend for good runway pavements is upward. Table 1 has achieved this trend for the past six years. One reason for this continuous improvement was attributed to the Pavement Condition Index (PCI) Study performed in 2003 and 2004. Approximately 40 PCI Studies have been programmed and contracted for 2011 to be completed in early 2012. This study qualified the conditions of pavement, providing better direction in programming funds towards more critical pavements. Table 2 shows the Primary and Crosswind Runways in Good Condition. The breakdown of this information provided guidance to programming of funds to critical airports needing improvement. In February of 2009 MoDOT contracted with a consultant to prepare a packaged set of maintenance projects at five state aviation funded airports. This was the first time MoDOT completed a "packaged airport" construction project involving a number of airports. The results increased the number of completed projects, and elevated the number runways in good condition.

From 2007 to 2008, the cap to the State Aviation Trust Fund was increased from 6 million to 10 million dollars. This funding increase also contributed to the increase in the number of pavement maintenance projects, thus increasing the number of runways in good condition.

The 40 PCI Studies programmed and contracted for 2011 are to be completed in early 2012. This data will aid in setting the planning and programming priorities for the Aviation Pavement Maintenance Initiative.


Federal and State Funded
Percent of Airport Pavements in Good Condition
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent
49%
58%
62%
70%
75%
78%
79%
2005
2006
2007
2008
2009
2010
2011
Year

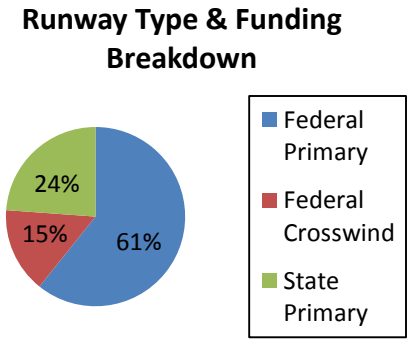

Primary & Crosswind Runways in Good Condition
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent
Primary
83%
Crosswind
55%
Primary
83%
Crosswind
60%
2010
2011
Year

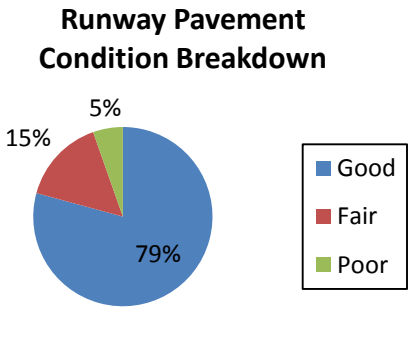


* Note: All crosswind runways are federally funded.

2011 Runway Breakdown	Total	Good	Fair	Poor
Federal Primary	79	70	8	1
Federal Crosswind	20	12	7	1
State Primary	31	21	5	5
	130	103	20	7

Three of seven runways in poor condition are federally funded. One of these three is a crosswind runway. One of the seven primary runways is in the design phase for runway improvements.





Smooth and Unrestricted Roads and Bridges

Annual FRA Inspections and Defects Found by MoDOT Railroad Staff

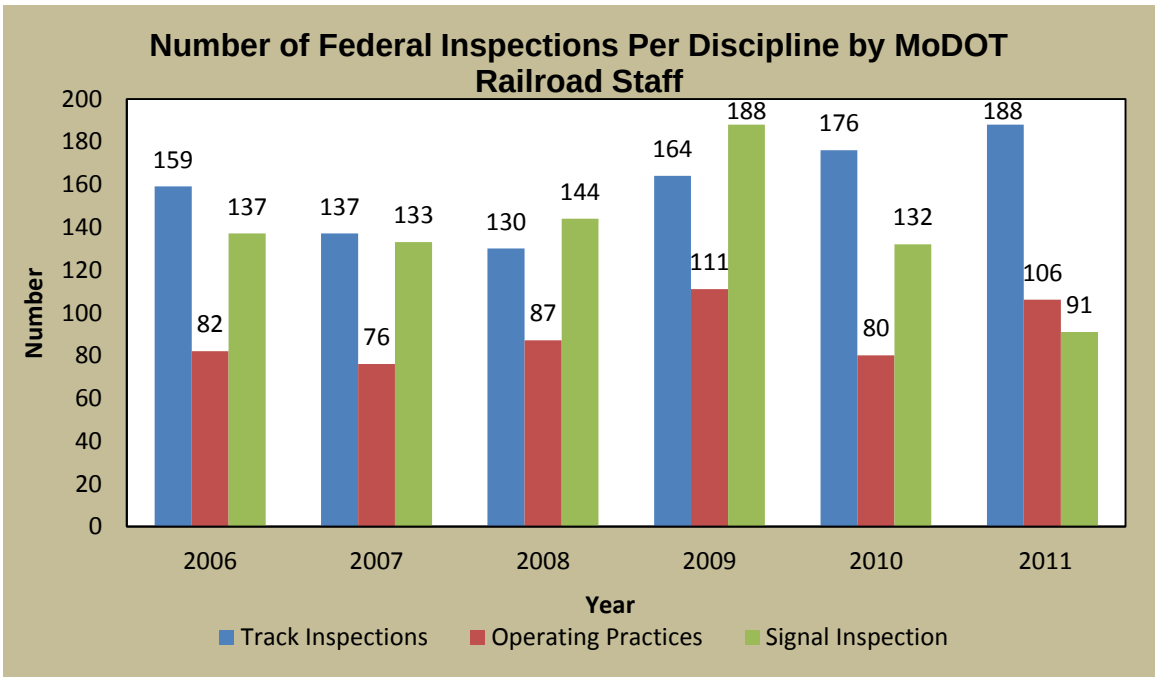
Result Driver: Missy Wilbers, Railroad Projects Manager
Measurement Driver: Richard Allsbury, Senior Railroad Safety Inspector

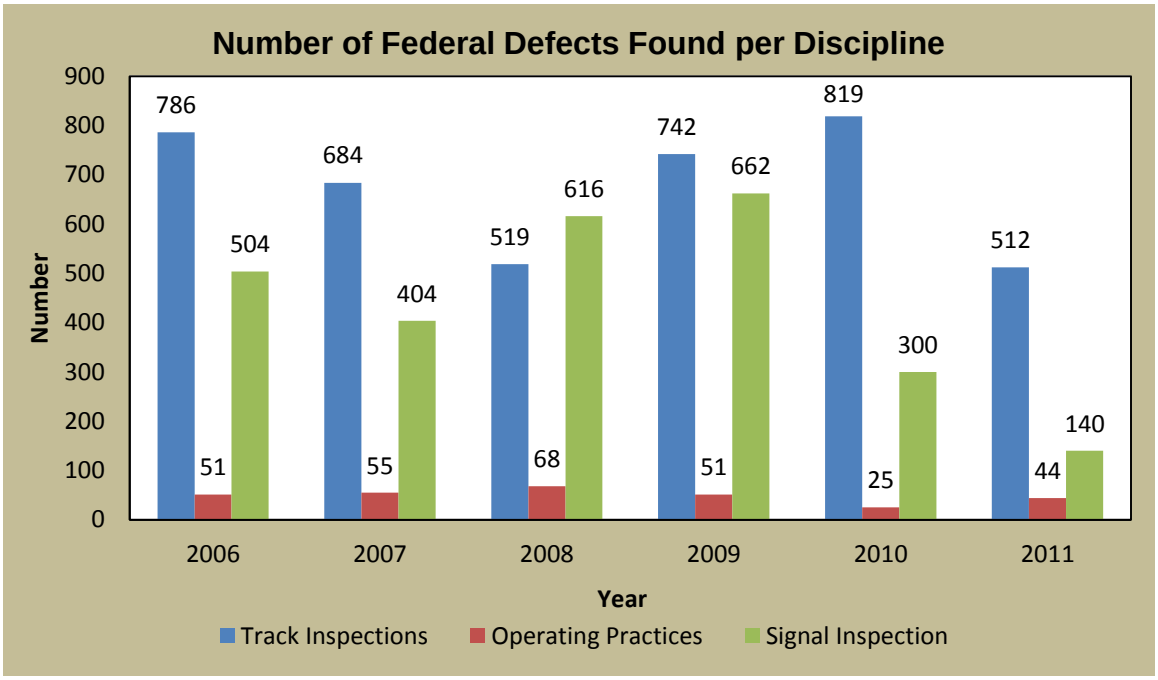
Purpose of the Measure:
This measure provides information about the number of federal inspections performed by MoDOT inspectors. MoDOT is committed to performing FRA (Federal Railroad Administration) inspections and the trend should be to see the number of federal inspections increase and the numbers of defects decrease.

Measurement and Data Collection:
Data is collected through the State Managers Report found on the FRA secure website which is updated after each inspection. Data is then pulled quarterly from the FRA database (to help determine effectiveness with railroads and the FRA).

Improvement Status:
The goal is to increase the number of FRA inspections and decrease the number of defects while doing routine inspections in the field. It is possible to achieve these goals by performing FRA inspections while conducting crossing inventory, routine inspections, complaint investigations, and accident/incident investigations. The number of FRA track and operating practices inspections increased over last year. The number of signal inspections decreased by 41. This is a result of the reduction in certified signal inspectors to one in 2010. However, the number of FRA inspections completed in each area of discipline exceeded both federal and state goals per inspector.

The number of track defects found during inspection decreased by 37 percent, which can be attributed to our increased presence on railroad properties and because we are more aggressively recommending violations to the FRA. The lower number of defects found during signal inspections in 2011 indicates the railroads are being proactive in signal maintenance. Coincidently, it may also be attributed to the reduction of inspections staff.




Number of Federal Defects Found per Discipline
900
800
700
600
500
400
300
200
100
0
Number
786
51
504
684
55
404
519
68
616
742
51
662
819
25
300
512
44
140
2006
2007
2008
2009
2010
2011
Year
Track Inspections
Operating Practices
Signal Inspection

Safe Transportation System

Number of Public Highway-Rail Crossing Closures

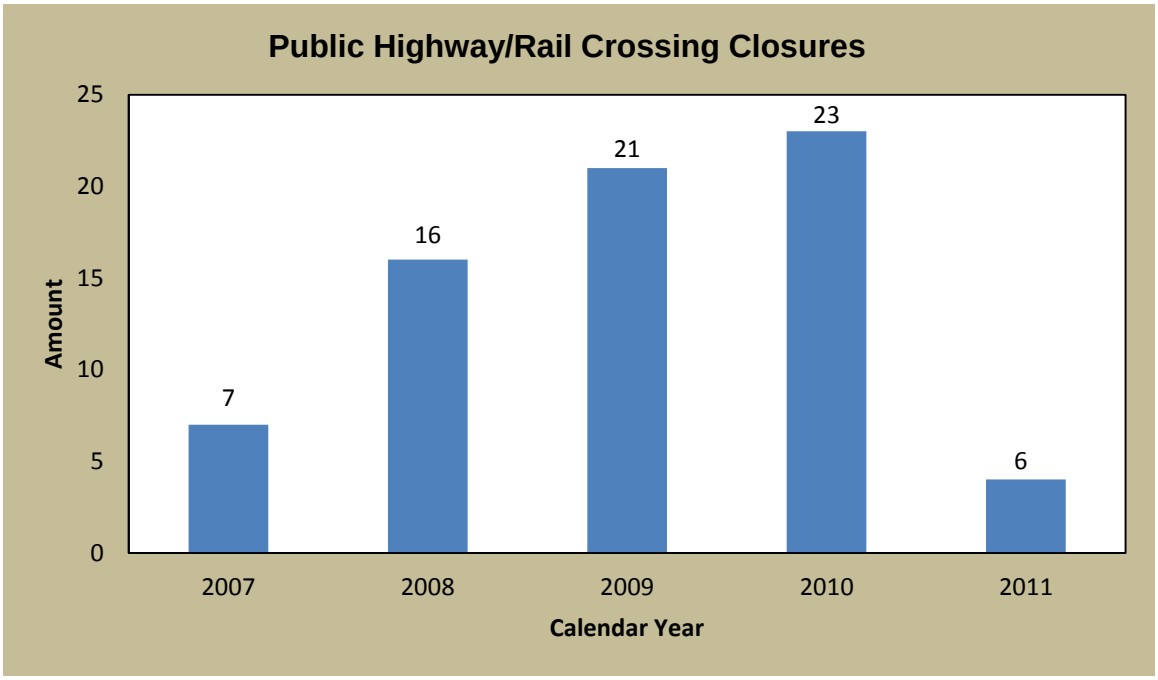
Result Driver: Missy Wilbers, Railroad Projects Manager
Measurement Driver: Don Schwartze, Railroad Safety Specialist

Purpose of the Measure:
This measure tracks the number of public highway/rail grade crossings that have been closed to vehicular traffic either as a result of outright closure or a cooperative project to upgrade an adjacent crossing.

Measurement and Data Collection:
This information is gathered via the Railroad Section Information System (RSIS), when it is updated, when a project file is closed, and the crossing has been inspected.

Improvement Status:
The reasons why highway/rail grade crossing closures are beneficial are: (1) crossing closures will eliminate any future crashes, injuries and fatalities from occurring at that location; (2) consolidation of crossings within a community will facilitate signalization of the ones with higher exposure and (3) those consolidations will increase the traffic at adjacent crossings where new signals may be installed.

Several activities by our staff have contributed to the increased number of crossing closures. We attend city and county government sponsored meetings to discuss potential projects that would include crossing closures that will ultimately improve safety in their communities. We continue to improve our data in the crossing inventory which helps us identify low volume crossings and helps justify the closure of redundant crossings. There are additional locations now under consideration at various stages of agreement or negotiation that may lead to additional crossing closures. Six crossings were closed in 2011.



Safe Transportation System

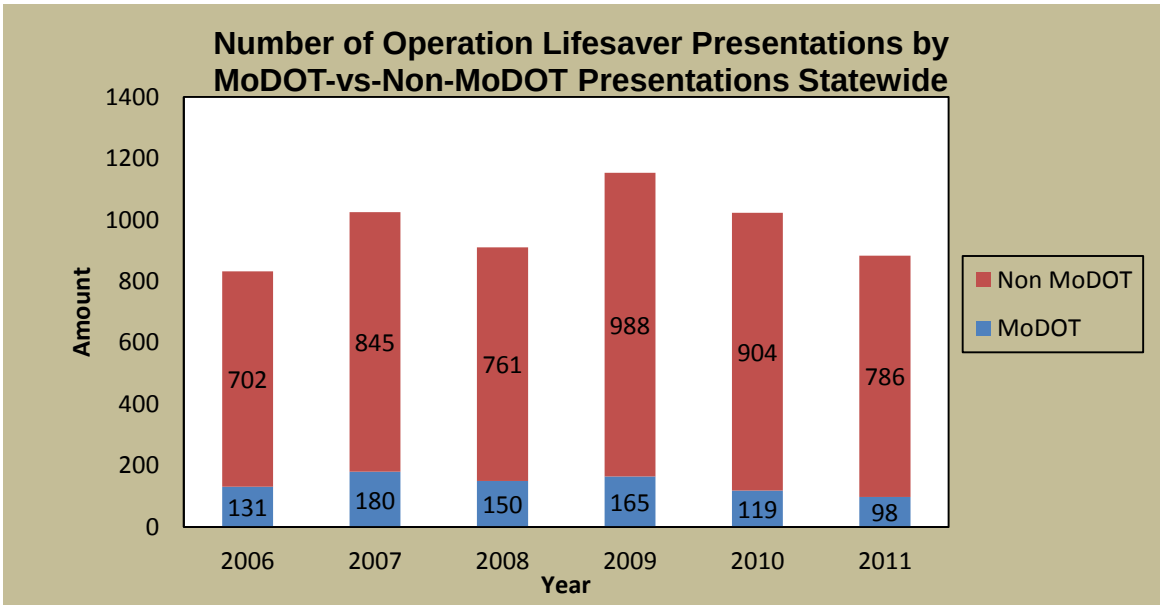
Operation Lifesaver (OL) Presentations Given by MoDOT Staff Compared to Number of OL Presentations Given by Non-MoDOT Presenters

Result Driver: Missy Wilbers, Railroad Projects Manager
Measurement Driver: Jack Wright, Rail Safety Specialist

Purpose of the Measure:
This measure tracks the number of Operation Lifesaver (OL) presentations given by MoDOT staff during each twelve-month period compared to the number of presentations given by all other OL presenters in the state during the same period. These educational presentations are a proven strategy to reduce collisions at highway-railroad crossings and to reduce railroad right of way trespasser injuries.

Measurement and Data Collection:
All certified OL presenters are required to report the number of presentations given each month to the coordinator of the Missouri OL. The coordinator provides the data for this report based on the reports given to him by each presenter.

Improvement Status:
The desired trend is to increase the number of presentations by MoDOT personnel. The minimum number of presentations required by each MoDOT presenter to maintain their OL certification is four. Through the year in 2011 MoDOT had six certified OL presenters who made 98 presentations to 2,132 individuals statewide. 88% of those presentations were given to students (K-12) and 12% were given to Bus Drivers (commercial and school).
There were a total of 61 non-MoDOT presenters in the state of Missouri who made 786 presentations in 2011 to the following groups: 56% Students, 23% Adults, 13% Truck Drivers, 6% Bus Drivers, 2% Law Enforcement/Fire/EMT for a total of 23,425 individuals statewide. In 2011 there were 3,414 certified presenters in the United States who presented to 976,389 individuals nationwide.



Safe Transportation System

Percentage of Railroad State Defects Corrected within 120 Days

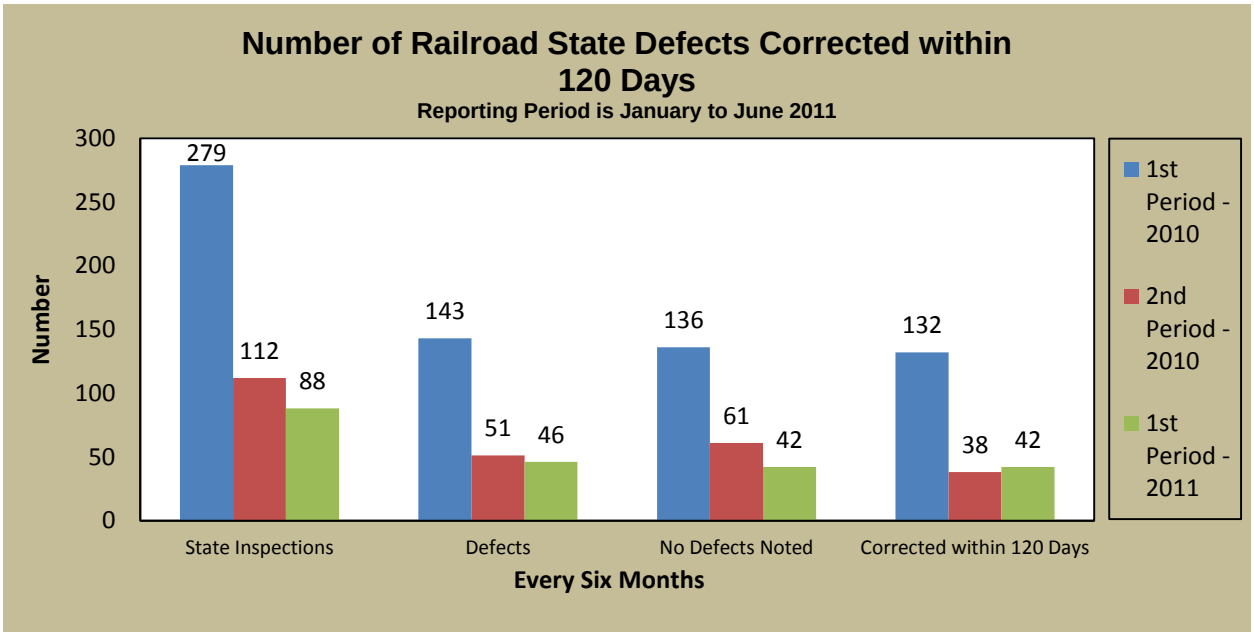
Result Driver: Kristi Jamison, Railroad Operations Manager
Measurement Driver: Cory Reynolds, Railroad Safety Inspector

Purpose of the Measure:
This measure provides information about the percentage of state inspections that have been written and brought into compliance within 120 days. This measure will track how many state inspections are being completed and how many have deficiencies that have been corrected within 120 days.

Measurement and Data Collection:
Data is collected through the rail inspector's inspections into a central database and updated as defects are brought into compliance. Inspectors will be responsible for issuing a state report for locations they visit and then keeping track of how many deficiencies are issued and when they are corrected.

Improvement Status:
The railroad section is putting more emphasis on the Railroad's responsibility of returning the inspection report as soon as a defect is corrected. If a railroad is unable to repair defects noted within 120 days after the date of inspection, the railroad should contact our office to request an extension with a new completion date. On the date repairs are to be completed a call or an onsite visit is typically made to verify completion. If defects at this time have not been completed a violation will be recommended.

As of June 30, 2011, 91 percent of defects were brought into compliance within 120 days. The old data indicates we maintained a 75 percent of the defects brought into compliance within 120 days during the previous reporting period. Reporting period for the first period in 2010 was at 95 percent. Due to weather and higher percentage of defects on shortline railroads, it will require more emphasis from the inspectors and will typically require more time for defects to be brought into compliance. The reason for this is Shortline railroads have less equipment, man power, and financial resources. While our percentage is up from the previous reporting period, we (inspectors) will continue to strive for 100 percent compliance. In keeping with the desired trend, inspectors will continue to closely monitor the railroads to ensure defects are corrected within 120 days



Safe Transportation System

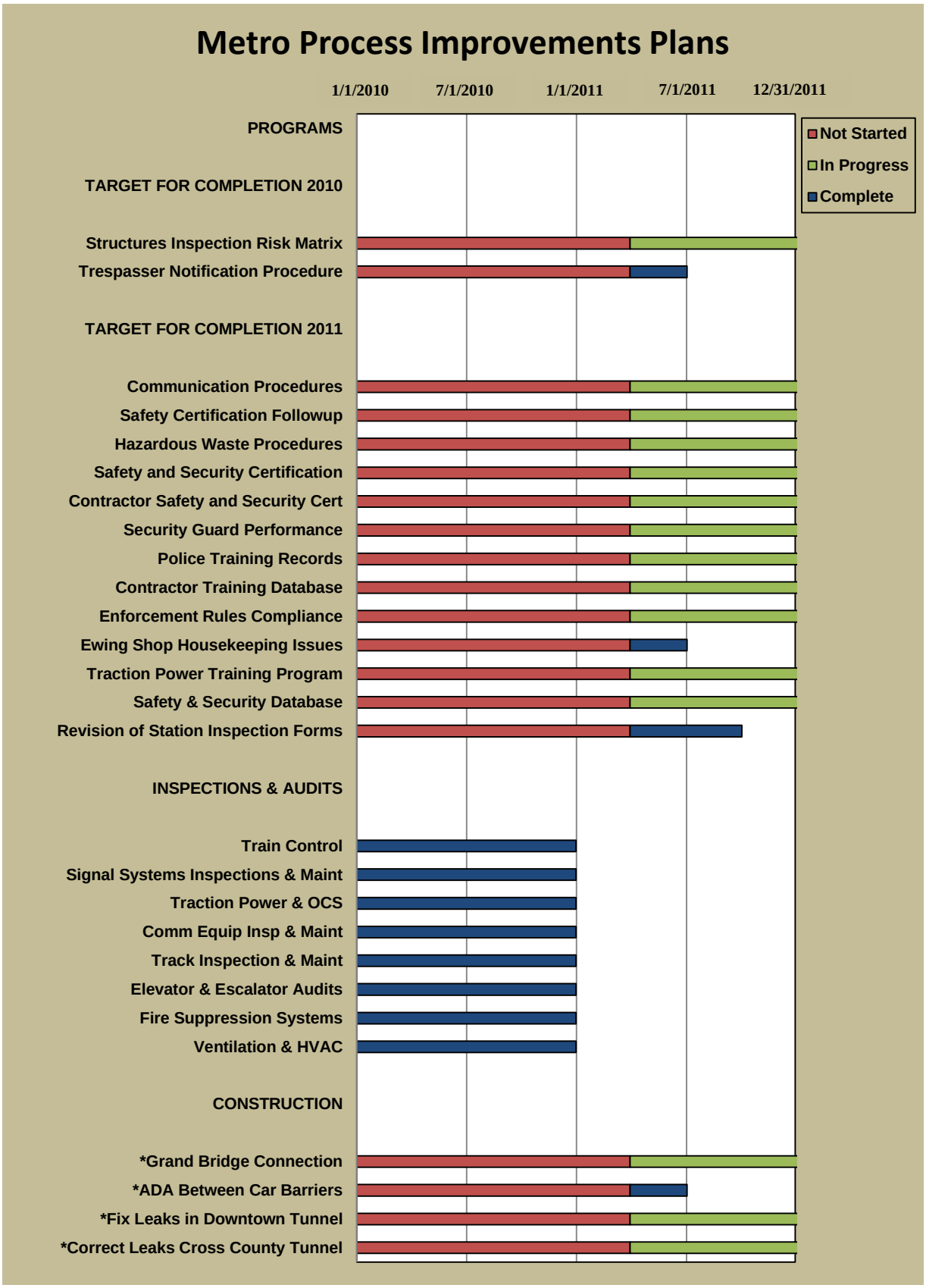
Metro Process Improvement Plans Started, In Progress and Completed

Result Driver: Kristine Jamison, Rail Operations Manager
Measurement Driver: Dudley Robinson, Railroad & Light Rail Safety Specialist

Purpose of the Measure:
This measure tracks the status of Process Improvement programs completed in 2010, and the additional processes scheduled for 2011. These measures were selected as a means to support Metro Transit Rail System Safety processes, which are comprised of people, procedures, equipment, and the environment.

Measurement and Data Collection:
Corrective Action Plans, which measure the implementation of process improvements, are scheduled based known or perceived hazards by the Rail Transit Agency, MoDOT, and SCCTD. This is a quarterly measure, based on a rolling calendar to reflect process improvements completed, process improvements which remain, and whether capital expenditures are required to implement those improvements.

Improvement Status:
MoDOT has been recognized by the FTA during the most recent FTA Audit, as having worked with Metro to achieve a stronger and more comprehensive System Safety Program than previously existed, as validated by the Internal Audit process undertaken in 2010, where it was determined that Metro's Internal Audit program was well within the range of approaches observed by FTA's SSO Audit Team at Rail Transit Agencies throughout the nation.



* A capital expenditure greater than $100,000 is required for completion.

Safe Transportation System

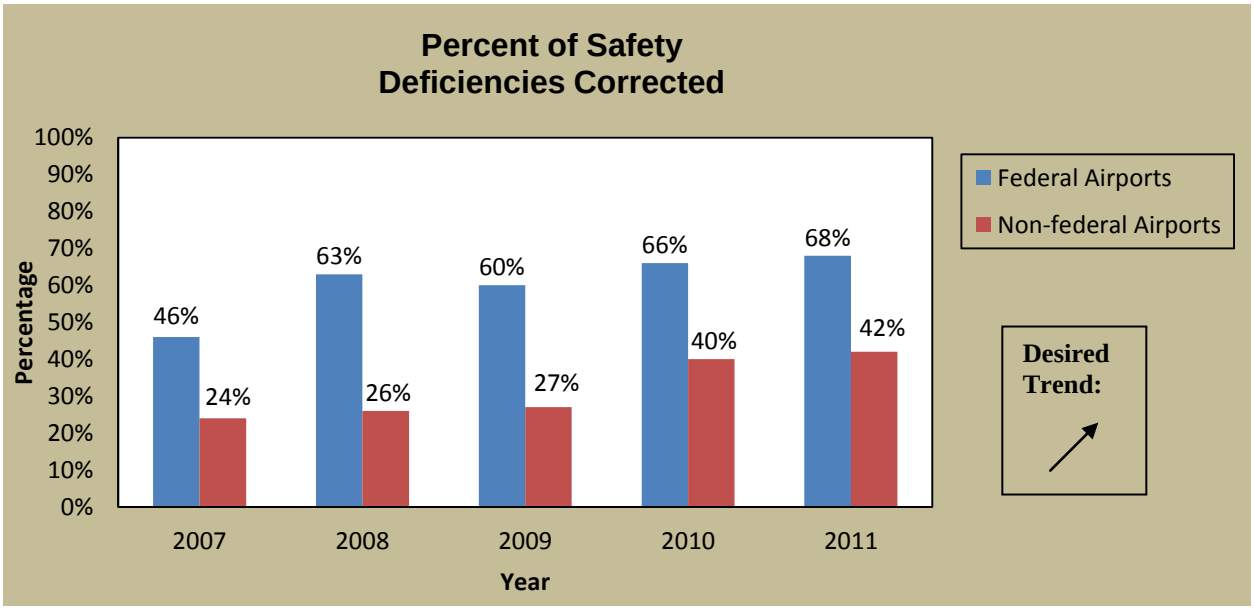
Percent of Safety Related Airport Inspection Deficiencies Corrected

Result Driver: Mark Anderson, Aviation Operations Manager
Measurement Driver: Jim Goodrich, Department Pilot

Purpose of the Measure:
This measure tracks the number of airport safety inspection deficiencies corrected over a three-year time period at each general aviation airport inspected. It provides an indication of how well airports are responding to and mitigating airport safety deficiencies identified during MoDOT/FAA facility inspections. The MoDOT Aviation Section does not have regulatory enforcement authority but identifies problems and recommends voluntary correction to ensure aviation safety.

Measurement and Data Collection:
The current total of 117 facilities is inspected over a three-year period. Each year, one-third of these facilities are inspected. To accurately represent the number of deficiencies corrected, this year's data compares 40 airports inspected in a particular year to when they were last inspected. This data is divided between federally funded airports and non-federally funded airports, and shows how the rate of corrections increases with funding.

Improvement Status:
The increase in percentage of deficiencies corrected are attributed to increased contact with airport owners and managers, reformatted written notification of discrepancies including additional persuasive language and deficiencies clearly defined as safety or design related, and implementation of a follow up process to monitor compliance. The 2011 data supports the significance of improvements at non-federally funded airports and is attributed to increased guidance, personal contact/relationship building, and plain language in communication. There is no change to the data for this reporting period.



Safe Transportation System

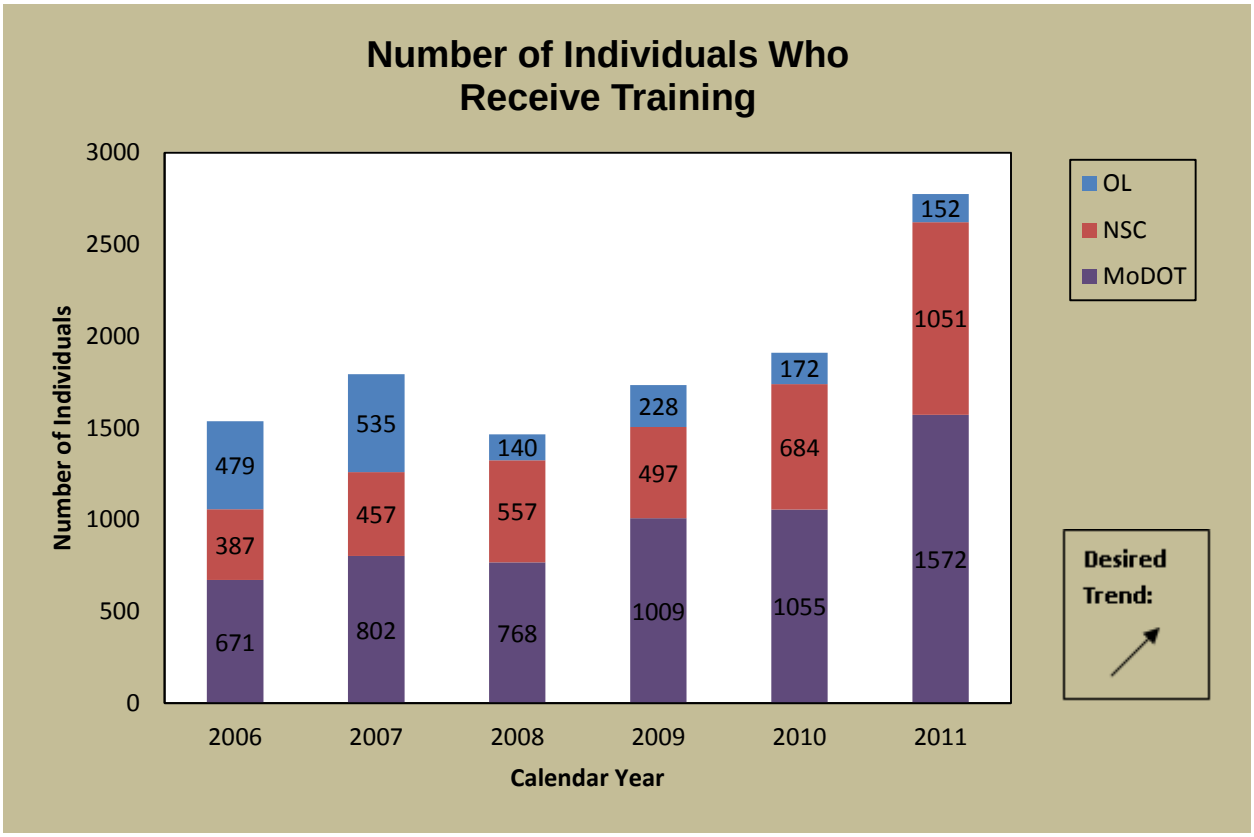
Number of Individuals Receiving Transit Training

Result Driver: Steve Billings, Administrator of Transit
Measurement Driver: John Rice, Multimodal Operations Specialist

Purpose of the Measure:
This measure tracks the number of individuals receiving transit training programs provided by MoDOT's Transit Section training staff. In addition to transit specific courses, the Transit Section also delivers Operation Lifesaver (OL) and National Safety Council (NSC) courses.

Measurement and Data Collection:
The transit training program attendance data is collected and reported by the total number of individual training certificates issued to participants. This data is recorded as programs are completed and retained on a calendar year basis. MoDOT and National Safety Council certificates are issued on a monthly basis. These certificates provide necessary documentation as to an individual's attendance and completion of each training session.

Improvement Status:
Calendar Year 2011 presentations by the Transit Section for National Safety Council classes (First Aid, CPR, Defensive Driving, etc.) increased substantially when compared to 2010. This increase in individuals trained was mainly due to the increase in requests for training by transit provider agencies. Attendance for the MoDOT sponsored classes (wheelchair securement, passenger assistance, vehicle backing etc.) also showed large increases in attendance. Operation Lifesaver presentations declined slightly in 2011. The total of individuals receiving driver training in 2011 is the highest number since Division Tracker data have been reported.



Outstanding Customer Service

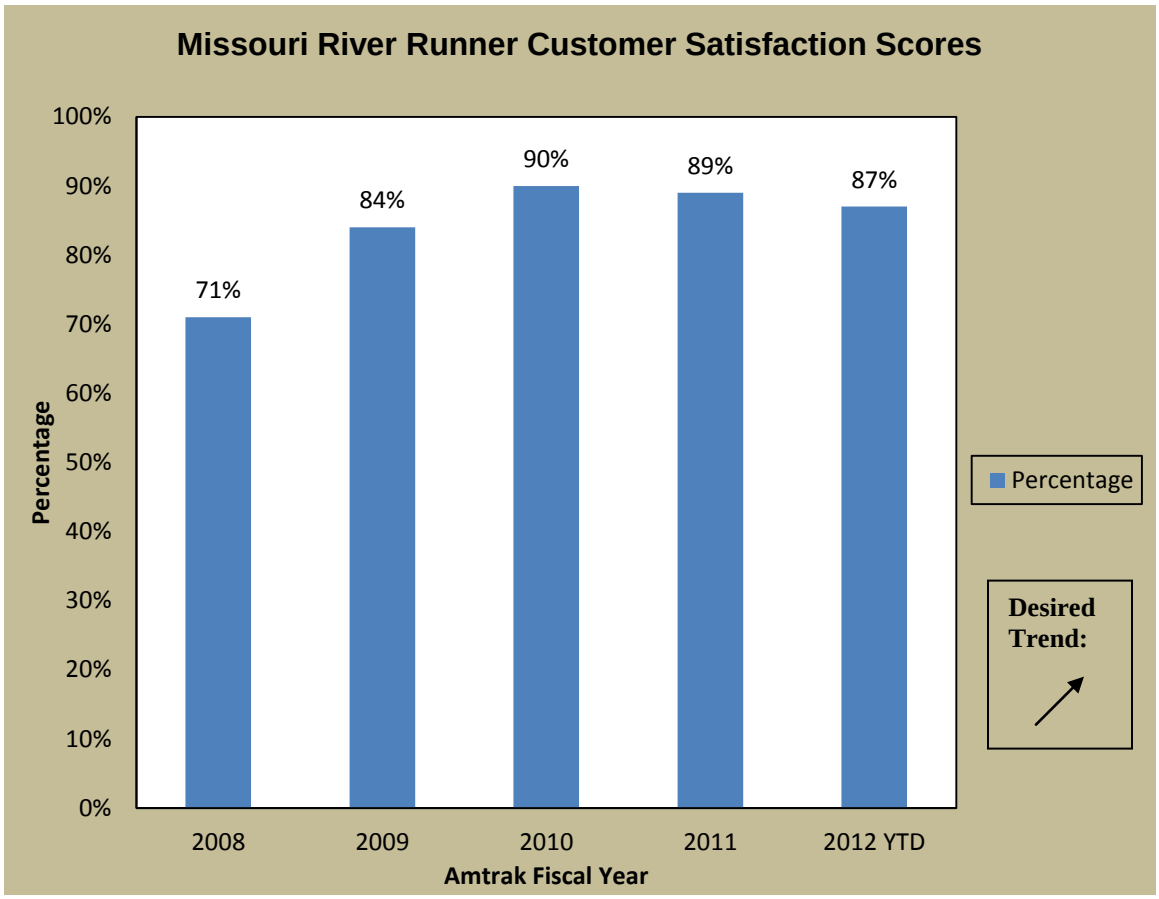
Percent of Customers Satisfied with Amtrak Service

Result Driver: Eric Curtit, Administrator of Railroads
Measurement Driver: Kristi Jamison, Railroad Operations Manager

Purpose of the Measure:
This measure demonstrates the overall satisfaction of passengers using the state-sponsored Missouri River Runner service on the St. Louis to Kansas City rail passenger corridor.

Measurement and Data Collection:
Amtrak conducts an ongoing monthly survey to generate a Customer Satisfaction Score for each of its routes. The index rates several categories including value of price paid for service, communications/announcements, comfort, cleanliness, on-time performance, security, friendliness and food service. Data for this measure comes directly from market research and analysis provided by Amtrak. It is tracked by Amtrak's fiscal year, which begins in October.

Improvement Status:
Amtrak set a Customer Satisfaction Score goal of 91 percent for Fiscal Year 2012 for the Missouri River Runner. Fiscal Year-to-Date through November 2011, the Missouri River Runner earned an 87 percent customer satisfaction score, 4 percent lower than the goal. Categories receiving the lowest scores were food service, cleanliness and communications.



Partner With Others to Deliver Transportation Services

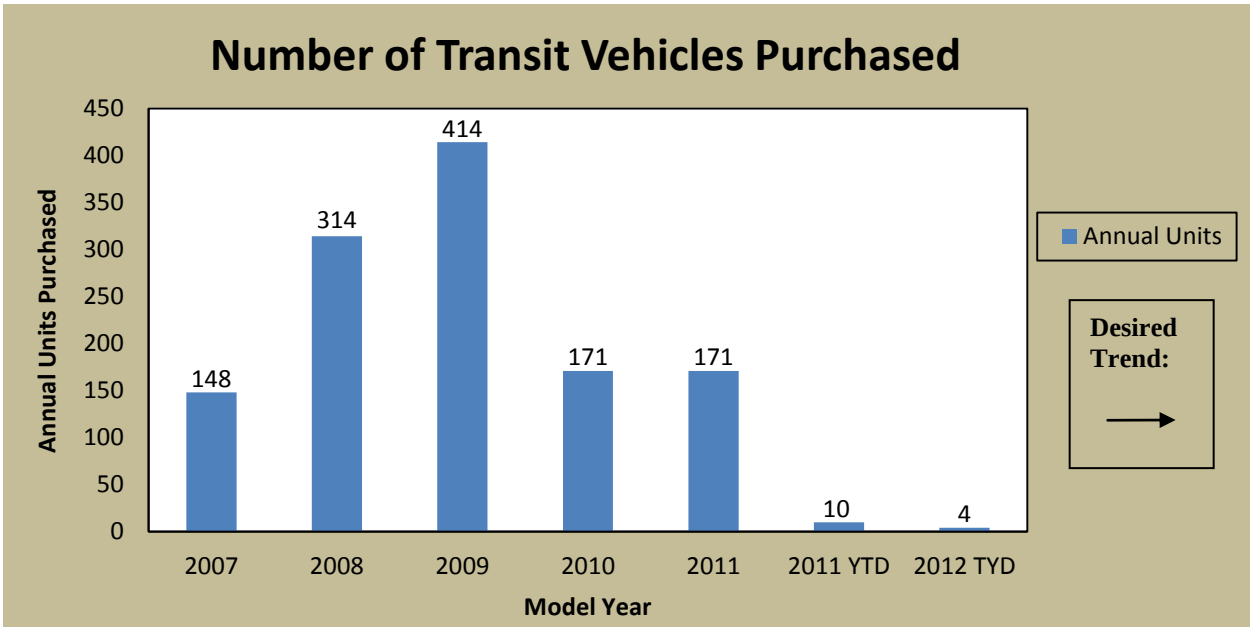
Number of Transit Vehicles Purchased

Result Driver: Michelle Teel, Director of Multimodal Operations
Measurement Driver: Steve Billings, Administrator of Transit

Purpose of the Measure:
This measure tracks the number of transit vehicle units procured and ordered by MoDOT's Transit Section primarily in support of Missouri's rural transit and specialized mobility providers.

Measurement and Data Collection:
The number of transit vehicles ordered is measured by the number of transit vehicle units for which purchase orders have been placed by MoDOT's Transit Section into the SAM-II system. The annual totals are grouped by "model year" which runs from the time of bid awards in the Fall of each year until approximately the month of May in the following year when the model year changeover takes place. Most transit vehicles procured by MoDOT have a 5 year, 150,000 mile service life, so the desired trend for replacing vehicles is ideally flat with one-fifth (approximately 300 vehicles) of the statewide rural transit and specialized transit fleets replaced each year.

Improvement Status:
Since 2009 when Recovery Act funds peaked with annualized transit vehicle orders at over 400 units, there has been a reduction in transit capital funding, primarily for rural transit providers in the federal discretionary transit capital programs. Vehicle bid awards for most 2012 model year transit vehicles have been delayed due to changing FTA requirements for transit vehicle manufacturers in the annual submission of their disadvantaged business enterprise (DBE) programs. Due to the uncertainty of federal transit funding authorization after March 31, 2012, FTA has not released any FFY 2012 funds that might be used to purchase vehicles. For 2012, MoDOT's purchase of transit vehicles will not likely exceed 2010 and 2010 order volumes.



Partner With Others To Deliver Transportation Services

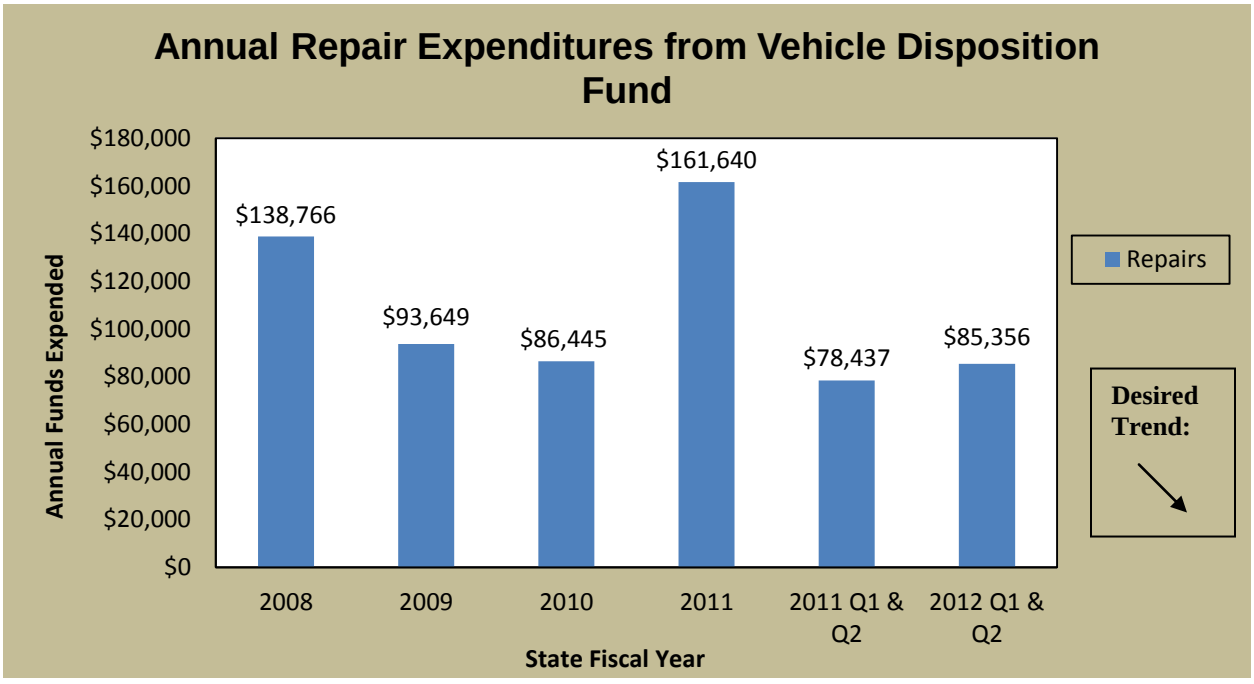
Annual Repair Expenditures from Transit Vehicle Disposition Fund

Result Driver: Steve Billings, Administrator of Transit
Measurement Driver: To Be Assigned

Purpose of the Measure:
This measure tracks the moneys expended by MoDOT's Transit Section from the Transit Vehicle Disposition Fund used to defray major component (engine replacement, transmission overhaul, etc.) vehicle repair costs in support of Missouri's rural, specialized and urban transit service providers.

Measurement and Data Collection:
The annual major repair expenditures are measured by totaling the dollars reimbursed from the "Request for Payment" forms paid from the vehicle disposition fund by MoDOT's Transit Section. This information is recorded/placed into the SAM-II System. The annual totals are grouped by "State Fiscal Year", that runs from July 1 through June 30 of each year.

Improvement Status:
Annual vehicle disposition fund expenditures are related to the age of Missouri's transit fleet. As the fleet ages, then major repair costs increase; as average fleet age decreases, then major repair costs tend to decline. There was a major increase in the payments from the vehicle disposition fund in state fiscal year 2011, setting an all time high. The first two quarters of state fiscal year 2012 indicate a further increase in the rate of use of these repair funds. The 2012 increase is largely attributed to the decreased number of replacement transit vehicle ordered by MoDOT in 2010 and in 2011 due to decreased federal transit capital funding coming to MoDOT.



Partner With Others to Deliver Transportation Services

Site Visits for Transit Grantees' Compliance with Federal & State Requirements

Results Driver: Steve Billings, Administrator of Transit
Measurement Driver: To Be Assigned

Purpose of the Measure:
This measure tracks the number of field audits conducted of transit providers who receive funding from federal transit programs (Sections 5309, 5310, 5311, and 5316) and the state funded Missouri Elderly & Handicapped Transportation Assistance Program (MEHTAP).

Measurement and Data Collection:
This measure is based on the number of field audits for which a field audit checklist is recorded and placed on file. This measure does not include visits to grantees for other purposes such as training, board meetings, etc. Grantees may receive funding from more than one federal transit program. While the Sections 5309, 5311, and 5316 programs share many of the same grantees, separate records are kept on field audits. However, Section 5310 and MEHTAP grantees are largely overlapping and separate counts are not kept on these audits as they are usually combined.

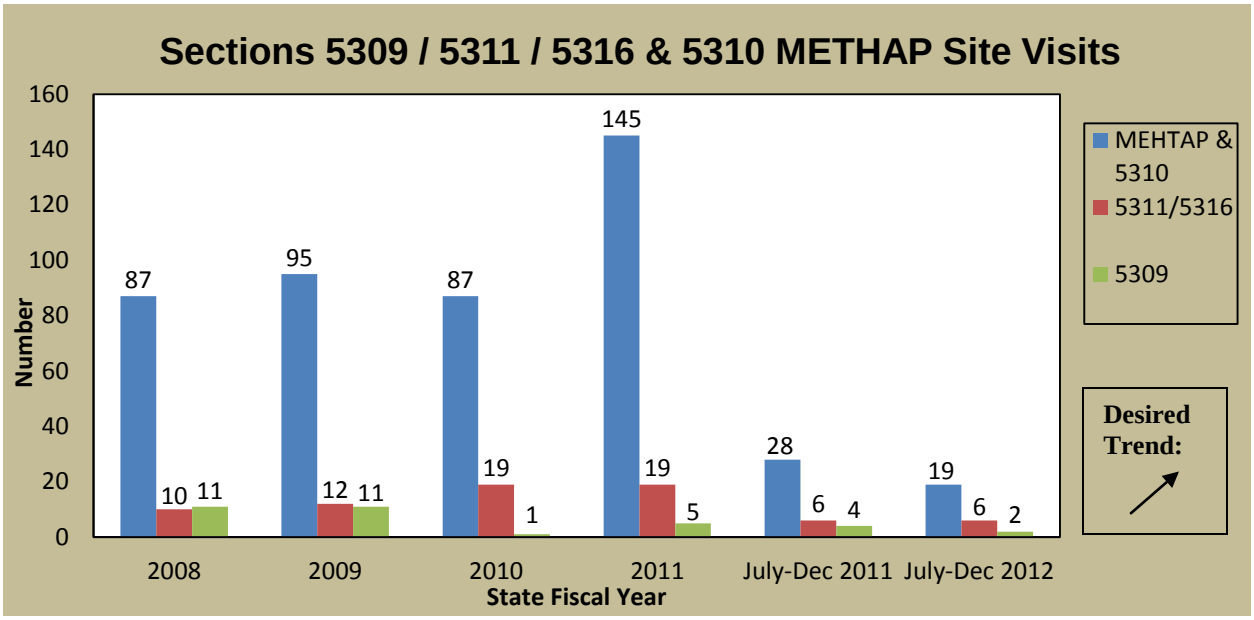
Improvement Status:
The goal for the Sections 5309, 5311, and 5316 programs is to conduct a field audit a minimum of every two years (on average 50% annual). The goal of the Section 5310 and MEHTAP program is to conduct a field audit a minimum of every three years (on average 33.3% annual).

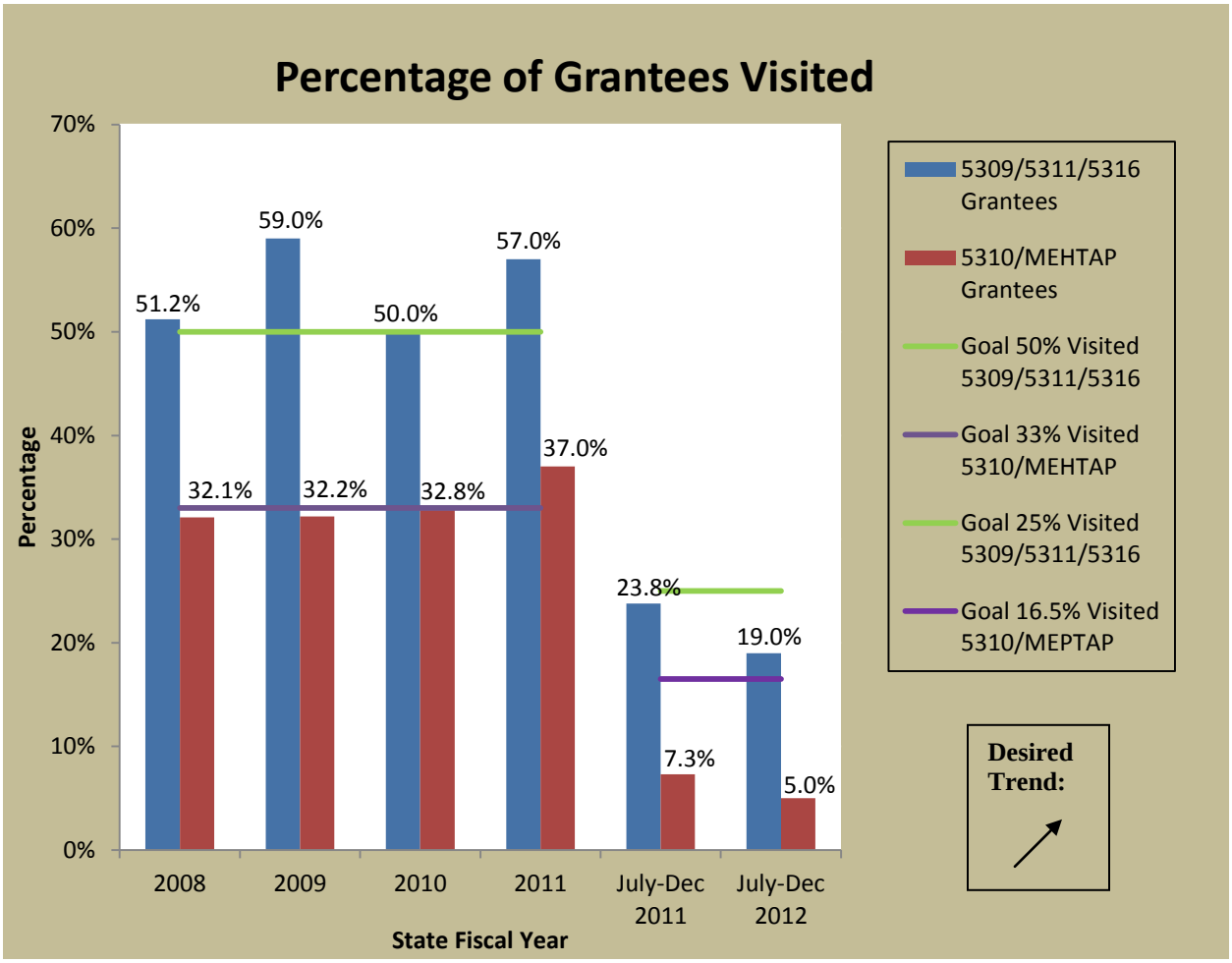
To analyze whether the goal above will be met, the percentage of site visits compared to the number of grantees is shown below:

At the conclusion of SFY 2011, One Hundred Forty-five 5310 / MEHTAP grantees had been audited. This is approximately 37% of the 382 grantees. The goal of 33% was exceeded by 4 percentage points.

For the Section 5309 / 5311 / 5316 grantees, twenty-four audits were completed in State Fiscal Year 2011 with forty-two active grantees. The goal of 50% was exceeded by 7 percentage points.

When the first six months of SFY2011 and SFY2012 are compared, the Section 5309 / 5311 / 5316 audits for the first six months of this fiscal year are less than the previous year's amount. At this point in the year, 25% of the grantees should have been audited. Of 42 grantees, only 8 audits have been completed. The goal for the second half of the year is to complete 13 audits. For the MEHTAP/5310 audits, the percentages for the six months are considerably less than the target of 16.5.3% (1/2 of 33%) as no data was available for field audits performed the second quarter of SFY 2012.


Sections 5309 / 5311 / 5316 & 5310 METHAP Site Visits
Number
160
140
120
100
80
60
40
20
0
87
10
11
95
12
11
87
19
1
145
19
5
28
6
4
19
6
2
2008
2009
2010
2011
July-Dec 2011
July-Dec 2012
State Fiscal Year
MEHTAP & 5310
5311/5316
5309
Desired Trend:


Percentage of Grantees Visited
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
51.2%
32.1%
59.0%
32.2%
50.0%
32.8%
57.0%
37.0%
23.8%
7.3%
19.0%
5.0%
2008
2009
2010
2011
July-Dec 2011
July-Dec 2012
State Fiscal Year
5309/5311/5316 Grantees
5310/MEHTAP Grantees
Goal 50% Visited 5309/5311/5316
Goal 33% Visited 5310/MEHTAP
Goal 25% Visited 5309/5311/5316
Goal 16.5% Visited 5310/MEPTAP
Desired Trend:

Advance Economic Development

New Capital Investment at Public Ports

Result Driver: Michelle Teel, Multimodal Operations Director
Measurement Driver: Sherrie Turley, Waterways Program Manager

Purpose of the Measure:
This measure will provide data as to the effectiveness of the use of state funds to match federal, local and private infrastructure dollars.

Measurement and Data Collection:
Data for this measure will be collected quarterly by ports and can be taken from their financial reports and information provided by tenants on a per project basis.

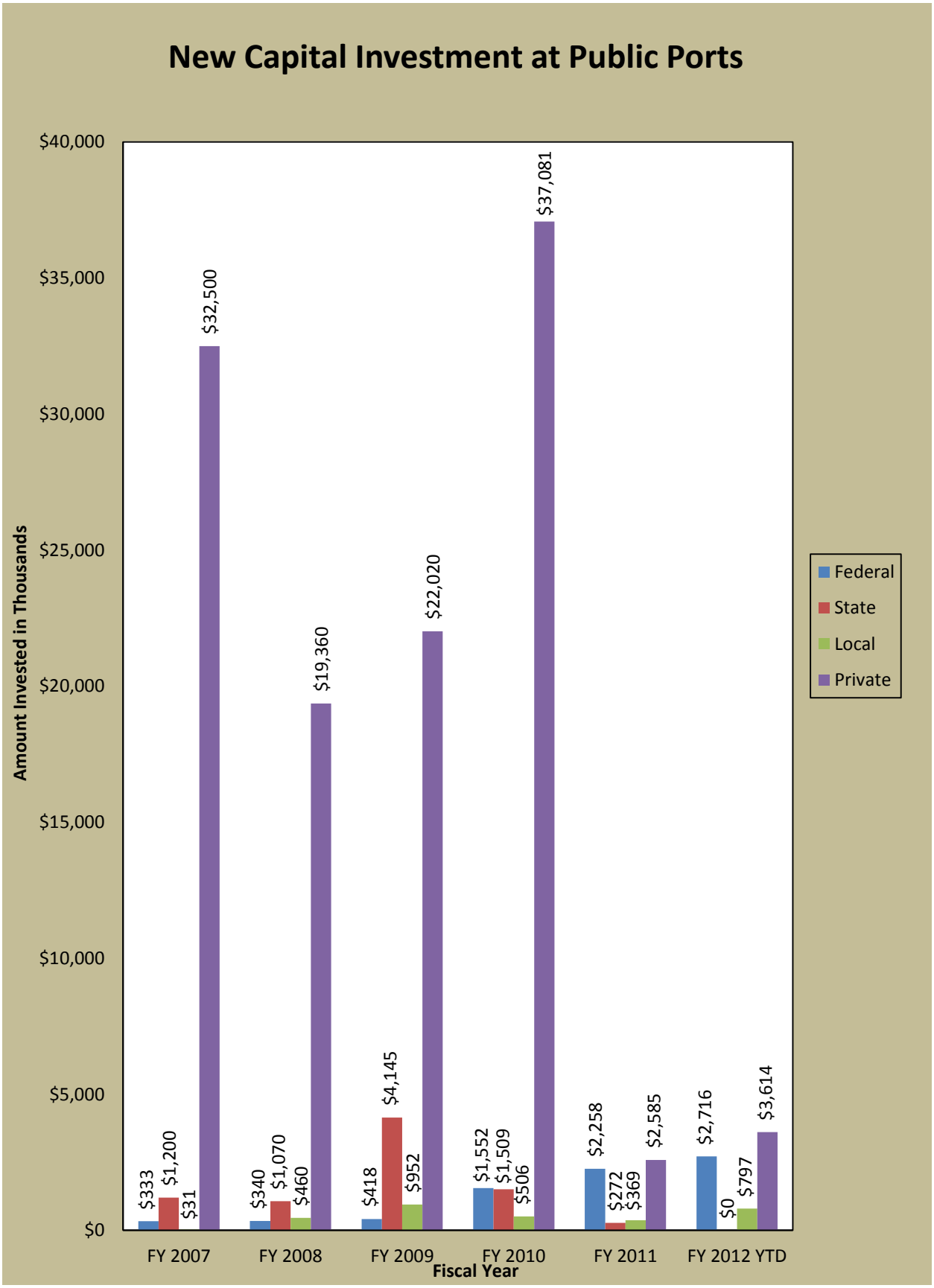
Improvement Status:
The Port Capital Improvement Program was not funded from 2001 through 2005 so there was little development through the previous six years. In fiscal-year 2007 federal funding of $333,268, state funding of $1,176,155 and local funding of $61,472 leveraged $32,505,542 of private capital investment.

In fiscal-year 2008 federal funding of $340,454, state funding of $1,074,416 and local funding of $459,309 leveraged $19,355,000 in private capital investment.

In fiscal-year 2009 the state funded the Port Capital Improvement Program with $6,650,000. These state funds leveraged $418,000 in Federal funds, $952,000 in local funds and $22,020,000 in private investment.

In fiscal-year 2010 several ports received federal earmarks for road projects and MoDOT awarded Federal American Recovery and Reinvestment Act funds to port projects. Additionally, federal funds in the way of Delta Regional Authority grants and Community Development Block Grants were awarded for new industry development. We continued to use the FY2009 state funds to complete projects and local funds were used to match the state and federal grants as required. These state and federal funds were used to leverage investment by private industry. Private industry invested $37,088,663, federal funds invested were $1,552,073, State of Missouri funds invested were $1,509,458 and local funds of $505,781 were invested.

In fiscal-year 2011, construction on projects funded from the fiscal-year 2009 state appropriation and all federal funds is nearing completion. Of the ten projects funded by the state, nine are complete and the remaining one will be complete by spring 2012. At this time there is no known source of federal or state funding for additional port infrastructure projects.


New Capital Investment at Public Ports
Amount Invested in Thousands
$40,000
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0
$333
$1,200
$31
$32,500
$340
$1,070
$460
$19,360
$418
$4,145
$952
$22,020
$1,552
$1,509
$506
$37,081
$2,258
$272
$369
$2,585
$2,716
$0
$797
$3,614
FY 2007
FY 2008
FY 2009
FY 2010
FY 2011
FY 2012 YTD
Fiscal Year
Federal
State
Local
Private

Advance Economic Development

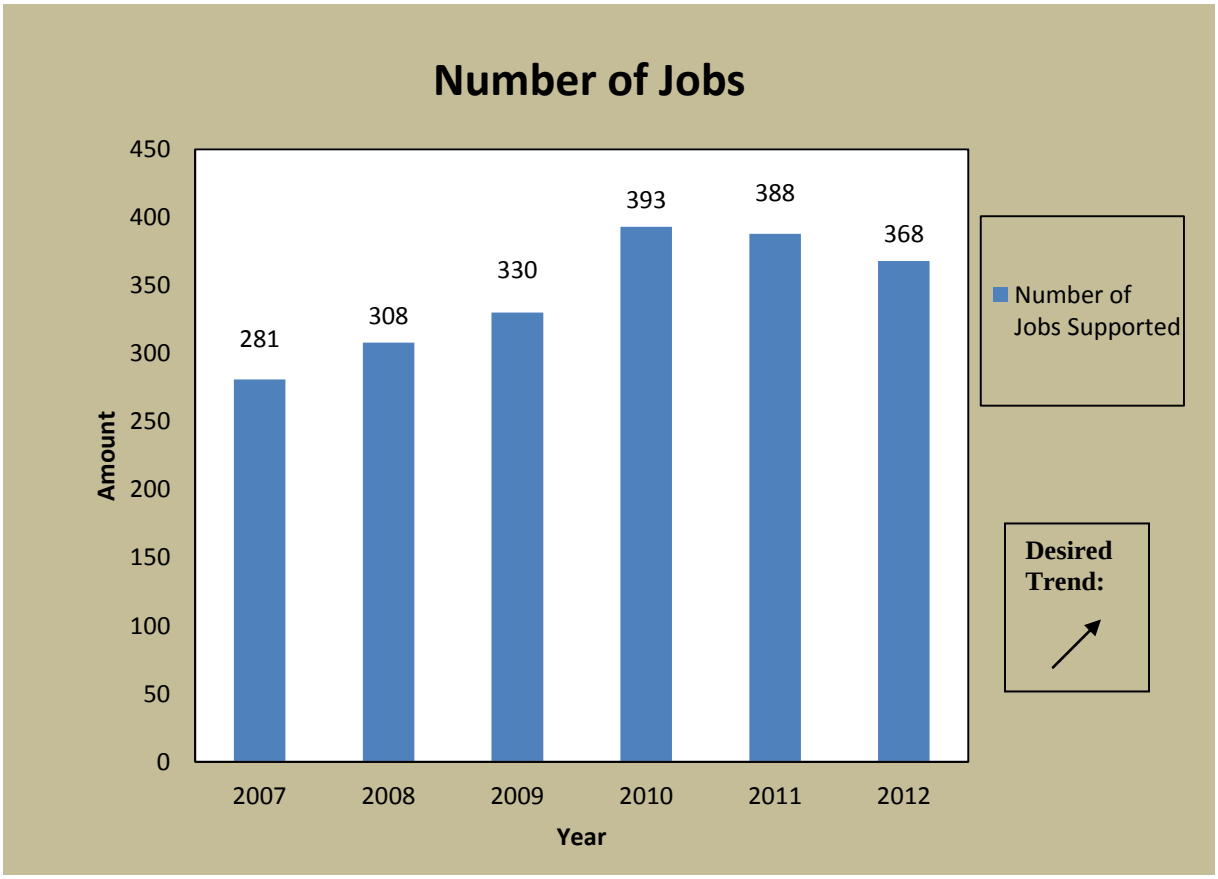
Number of Jobs at Public Port Facilities

Result Driver: Michelle Teel, Multimodal Operations Director
Measurement Driver: Sherrie Turley, Waterways Program Manager

Purpose of the Measure:
The primary objective of port development is to foster economic growth. This data provides a measure as to the level of success on a per project basis.

Measurement and Data Collection:
Data for this measure will be collected quarterly by ports. The data will be collected from individual port tenants and submitted to MoDOT as a cumulative number where ports have multiple tenants. Ports will be asked to collect data for January 1, April 1, July 1 and October 1.

Improvement Status:
Ports reported a decrease in employment at the end of Calendar-Year 2011 to 368. October 1 the ports reported 394 jobs. The ports generally handle commodities that are agriculture related and during the winter the facilities do not operate at full capacity. This is a seasonal dip in employment and it will rebound when jobs are reported in July.



Advance Economic Development

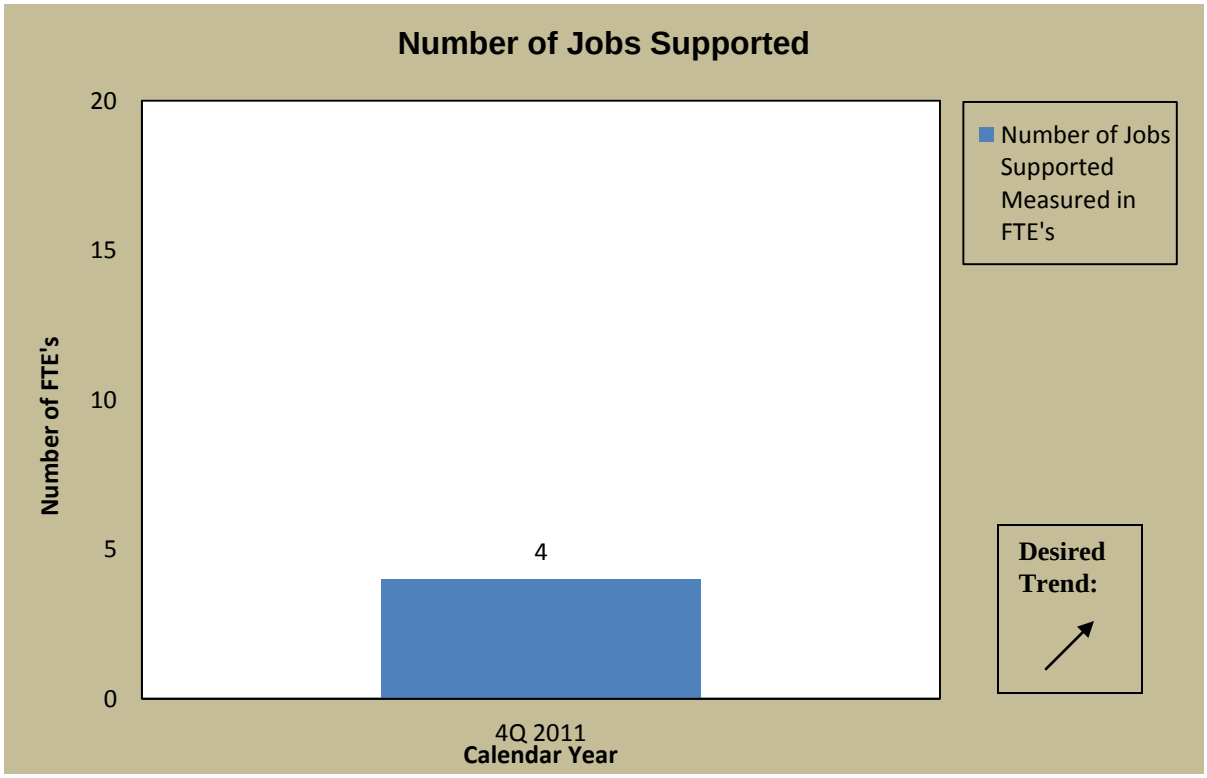
Number of Jobs Supported by Multimodal ARRA Projects

Result Driver: Michelle Teel, Multimodal Operations Director
Measurement Driver: Aaron Hubbard, Multimodal Operations Specialist

Purpose of the Measure:
This measure tracks the impact of ARRA projects on economic development as measured in directly supported full time equivalencies. This data represents the ARRA projects exclusive to Multimodal Operations and does not include the ancillary indirect or induced jobs that are also supported by these projects. This measure is reported quarterly.

Measurement and Data Collection:
Data is collected via required ARRA contractor reporting forms. Work hours are collected and converted into a full time equivalency to eliminate duplication.

Improvement Status:
This measure is new to Multimodal Operations reporting. Currently, Multimodal Operations has two ARRA projects under way, both in the Transit section. These projects include the ongoing construction of a new facility for OATS, Inc in Macon, Missouri, and the approaching completion of a facility in Dexter, Missouri for Stoddard County Transit. Historical data (not shown on the chart) reflects a sharp decline from the 2009 and 2010 peaks which suggests fewer FTE's being supported. However, this decline is expected due to the winding down of ARRA Transit projects. The timing of rail projects under ARRA are scheduled to ramp up in the coming quarter, so the data will soon realign with the desired trend.



Fast Projects That Are of Great Value

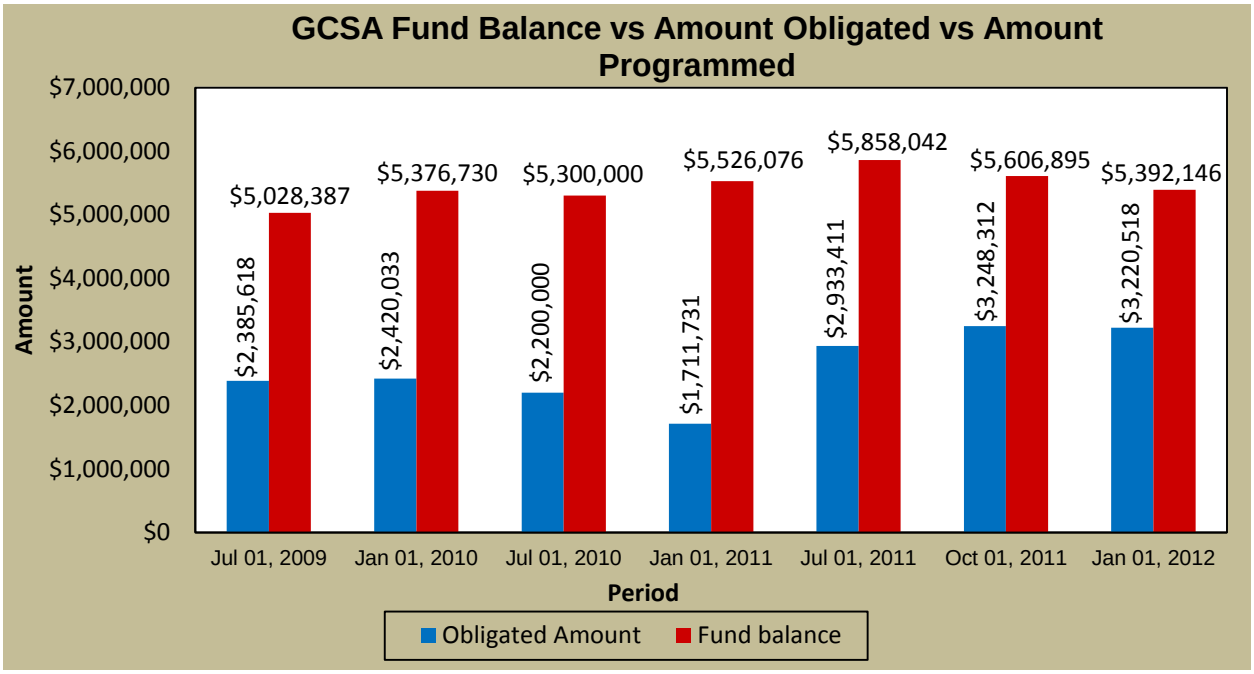
Grade Crossing Safety Account Fund Balance vs Amount Obligated vs Amount Programmed

Result Driver: Missy Wilbers, Railroad Projects Manager
Measurement Driver: Stanley Hoelscher, Senior Financial Services Specialist

Purpose of the Measure:
The purpose of this measure is to track the fund balance of the state Grade Crossing Safety Account versus the amount obligated to Grade Crossing Safety Projects to ensure that the funds in the account are being used and obligated as new projects come in.

Measurement and Data Collection:
Multimodal receives a monthly statement from the Department of Revenue showing the amount deposited into the Grade Crossing Fund. Multimodal maintains an account spreadsheet on the fund and measures the amount in the fund as a quarterly measurement on the 1st of each quarter.

Improvement Status:
The amounts obligated continue to rise as more and more projects are being approved. Procedures are in place to vary the percentage spent on projects versus the percentage from federal funds in certain cases so that the balance will go down, and this has occurred in the most recent three-month period. The optimum balance for the fund would be a fund balance of 6 million or below with an obligated amount of 75% or more.



Fast Projects That Are of Great Value

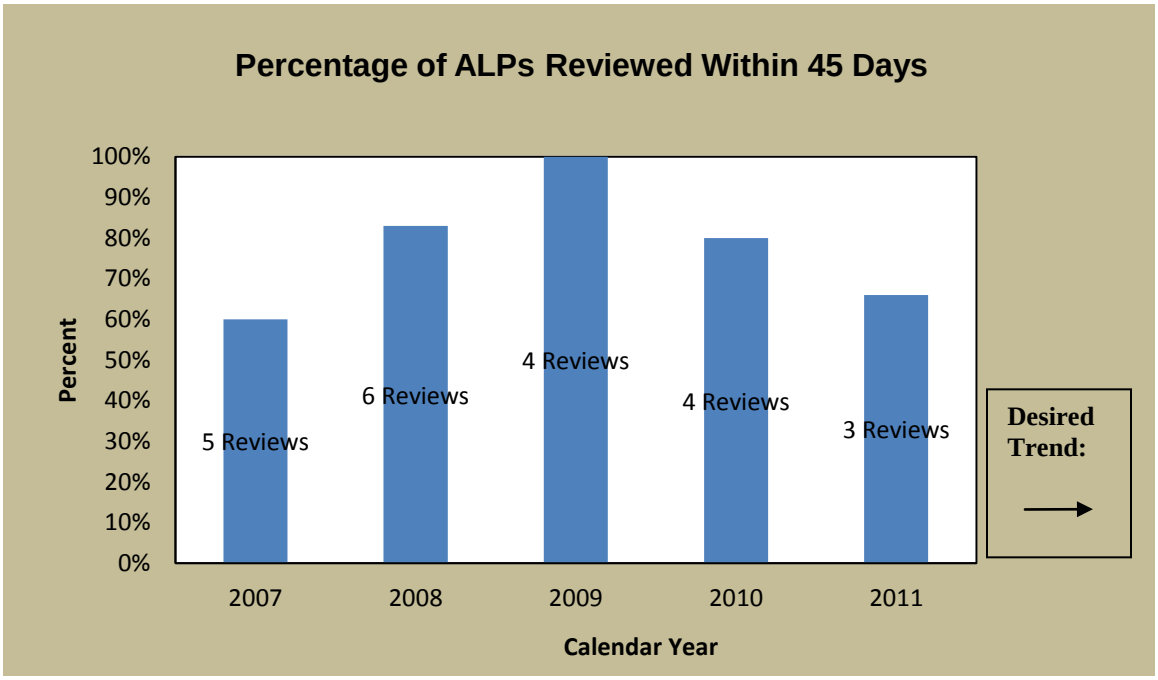
Percent of Airport Layout Plans (ALP) Reviewed Within 45 Days

Results Driver: Multimodal Operations Administrator of Aviation
Measurement Driver: Mark Anderson, Aviation Operations Manager

Purpose of the Measure:
This measure gauges MoDOT's involvement in the initial review time as part of the overall ALP approval and review process between MoDOT and the FAA.

Measurement and Data Collection:
The initial review time begins upon receipt of an ALP set, until the date correspondence on our review comments have been sent. A spreadsheet has been designed to track the approval process for ALPs. Measurement is reported on an annual basis and 2007 is the base year.

Improvement Status:
In calendar year 2011, the Aviation staff failed to complete one of three ALP reviews within 45 days. This delay can be attributed to the disturbed continuity of the section and was less than two weeks out of meeting the goal. Two additional ALP reviews are not accounted for in this reporting period. One of these was due to the FAA returning the ALP for errors, and the other was for an airport not reviewable by MoDOT. The successful achievement rate is attributable to the creation of a new checklist requirement for consultants to follow before submitting to our office for review, thereby reducing the review time.



Fast Projects That Are of Great Value

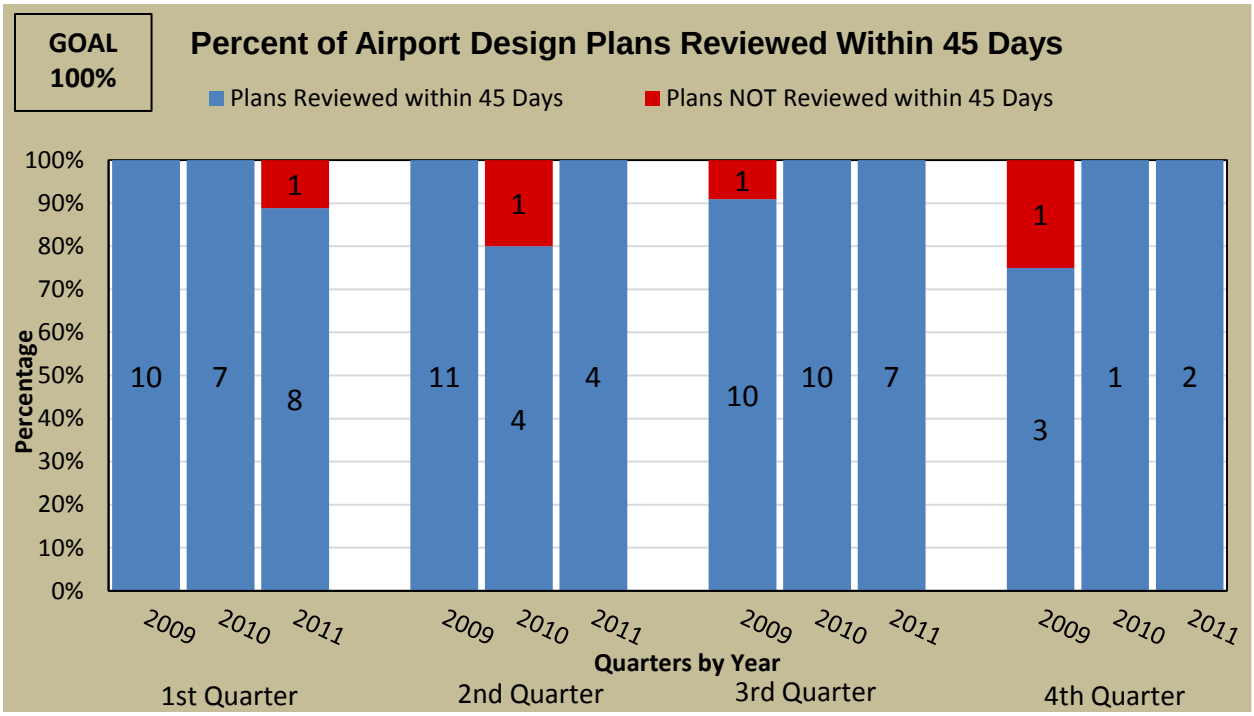
Percent of Airport Design Plans Reviewed Within 45 Days

Results Driver: Elizabeth Duvall, Aviation Programs Manager
Measurement Driver: David Burle, Airport Project Manager

Purpose of the Measure:
The purpose of this measure is to improve MoDOT Aviation Section, Project Manager's response time to the Sponsors regarding comments generated during review of aviation design plans that are near 100% complete for bidding purposes. The strategic review of all plans may reveal errors and omissions, which, if undetected until the construction phase of a project, could delay progress and increase costs. In this manner, timely plan reviews provide the Sponsor with accurate, understandable and proactive information.

Measurement and Data Collection:
When the Aviation Project Manager receives design plans, the date stamp on the document triggers the 45-day counting period. The project manager reviews the plans and lists review comments. When the review is complete, comments indicating whether design plans are acceptable as submitted, or explaining any necessary changes are sent to the Sponsor. Worksheets have been developed to track the date the design plans are given to the Project Manager and the date the review is completed. The calculated review time is then entered into a spreadsheet and reported quarterly.

Improvement Status:
Present plan review time is being tracked to review at or near 100% complete design plans within 45 days. This provides a timely review to the sponsors and consultants for project flow. The goal of 100% of airport design plans reviewed within 45 days was met 3 out of 4 quarters in 2011. This is the same as 2010 but an improvement from 2009 where the goal was only met in 2 of the 4 quarters.



Fast Projects That Are of Great Value

State Aviation Trust Fund Balance vs Amount Obligated and Tentative Allocated Funds

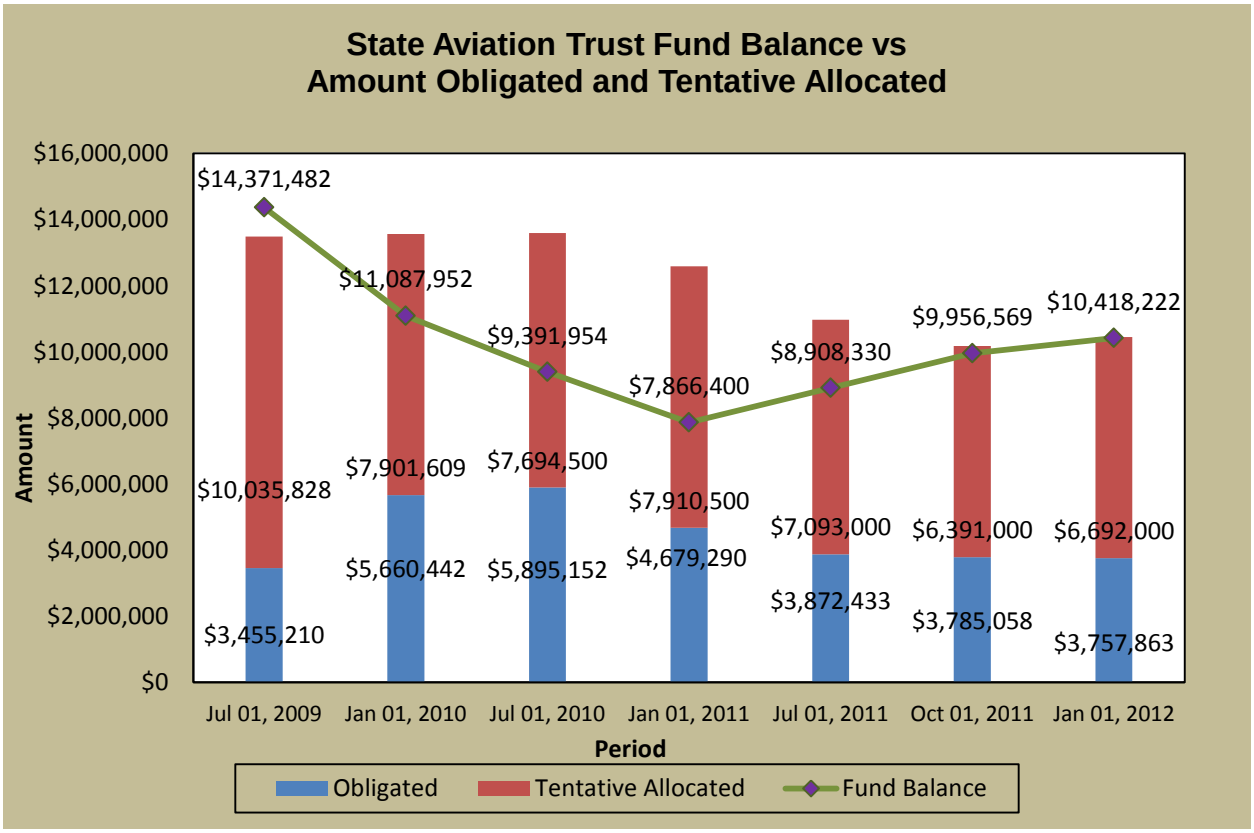
Result Driver: To Be Assigned
Measurement Driver: Stanley Hoelscher, Senior Financial Services Specialist

Purpose of the Measure:
The purpose of this measure is to track the fund balance of the state Aviation Trust Fund Account versus the amount obligated and tentative allocated to ensure that the amounts in it are spent down to fully utilize available funds.

Measurement and Data Collection:
Multimodal receives a monthly statement from the Department of Revenue showing the amount deposited into the fund. Multimodal maintains an account spreadsheet on the fund and measures the amount in the fund as a quarterly measurement on the 1st of each quarter.

Improvement Status:
Projects were started on an accelerated schedule in 2008 after an increase in the fund was identified. This included earlier notification of tentative allocations of project funds and condensed schedules for project initiation and completion.

The state legislature increased the eligibility of the state aviation trust funds to include air service promotion. Air service promotion grants were issued in 2008 and 2009. Currently obligated and tentative allocated projects exceed available funding.



Fast Projects That Are of Great Value

Federal Funds Expended in State Fiscal Year

Results Driver: Multimodal Operations Aviation Administrator
Measurement Driver: Millicent Parker, Airport Project Technician

Purpose of the Measure:

The purpose of this measure is to track the federal funds spent on airport projects during the course of the state fiscal year. This measure tracks the totals of the Federal Airport Improvement Program funds, i.e. Federal Discretionary Funds, Federal Apportionment Funds, and Federal Non-primary Entitlement Funds. Since Federal funds have a four-year life, it is important to track expenditures to insure that funds are spent before they expire.

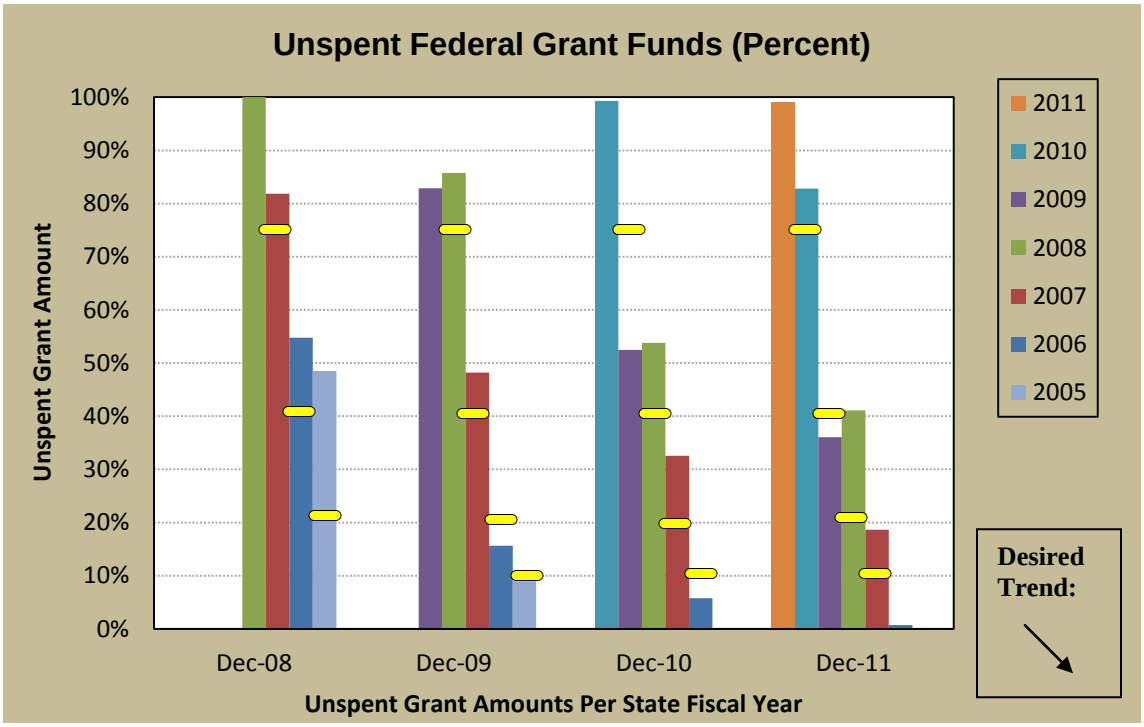
Measurement and Data Collection:

Funding data is submitted to the financial management system. Periodic reports are generated to track fund expenditures and remaining balances to determine whether funds are being utilized in a timely manner. The goal is to have 75% or less remaining in the grant funds after one year, 40% or less after two years, 20% or less after three years, and 0-10% by the end of the fourth year, as illustrated by the yellow markers on the graph below.

Improvement Status:

Federal funds must be monitored on a regular basis. The implementation of our web based airport system management program provides secure direct access to our system. Sponsors and consultants now have the ability to populate and update the information in their capital improvement program whenever necessary. This process streamlines CIP submittal, providing more accurate and timely project information and more efficient utilization of funds.

Grant Amounts have a five year period to reach the goal of 0% unspent funds. At the end of 2011, unspent funds in the 2006 allocation year are at 0.72% of unspent funds. Allocation year 2007 is at 18.63% after the fourth year; goal is 10%.



Easily Accessible Modal Choices

Number of Days the Missouri River is Navigable

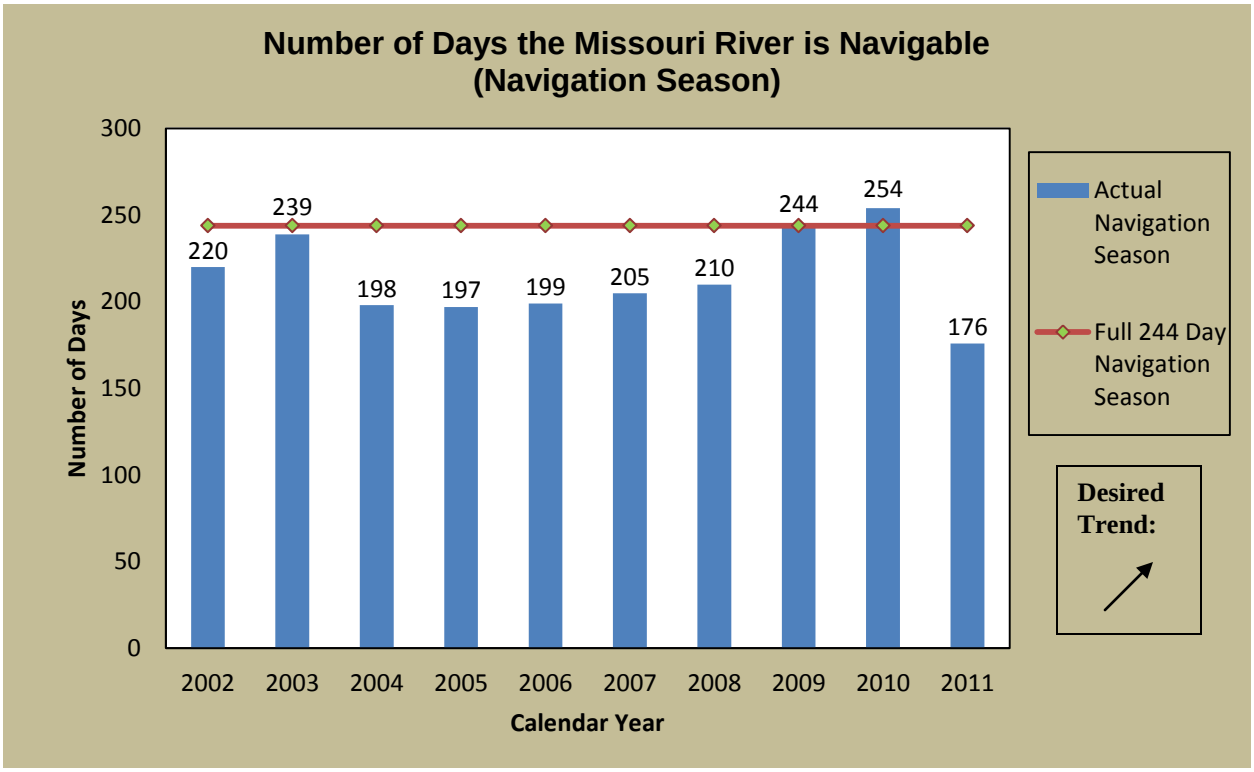
Result Driver: Michelle Teel, Multimodal Operations Director
Measurement Driver: Sherrie Turley, Waterways Program Manager

Purpose of the Measure:
This measure provides historical data regarding the use of the inland waterways navigation system. The Mississippi River typically is open to navigation year round with interruptions to navigation only for extreme high/low water events and winter conditions on the Upper Mississippi. The Missouri River has a controlled navigation season.

Measurement and Data Collection:
The U.S. Army Corps of Engineers publishes an Annual Operating Plan for the Missouri River and bases the end of navigation season on pool storage levels as of July 1 each year.

Improvement Status:
The 2011 navigation season officially began April 1 but there was enough water for navigation prior to the season opening and the navigation industry took advantage of it. The first boat was on the river 11 days prior to April. Above average snow pack and above average rain in the Upper Missouri Basin resulted in 250% of normal runoff. As a result, there was historic flooding on the Missouri River. Gavins Point Dam releases, which control the Missouri River flow through the State of Missouri, reached 160,000 cubic feet per second and stayed at that level from June 26 through July 31. The previous record for release was 70,000 cubic feet per second. Due to flooding, navigation was closed on June 24 from above Kansas City to Sioux City, IA. On July 12 the closure was extended to Glasgow. On August 19 navigation was restored to Brunswick, MO and on August 25 it was restored to 10 miles north of Kansas City. Storage level as of July 1 determined that there was enough in storage to support a full season plus 10 extra days, which would be December 10. With all the water, with good tributary flows and a mild winter the navigators could be on the river to near Christmas and come back in January along some reaches.

Releases are still high in an effort to create flood storage in the upper basin states but long haul operators were off the river by December 15. The closure from June 24 to September 27 of portions of the river resulted in the loss of 94 days in the middle of the season. The industry gained 11 days prior to and 15 days at the end of the scheduled season. Normally the navigation season is 244 days but the closures resulted in a 176 day season for the entire river to be open. Operators were able to move south of mile 360 during 31 days of the 94 day closure.


Number of Days the Missouri River is Navigable
(Navigation Season)
300
250
200
150
100
50
0
Number of Days
220
239
198
197
199
205
210
244
254
176
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Calendar Year
Actual Navigation Season
Full 244 Day Navigation Season
Desired Trend:

Easily Accessible Modal Choices

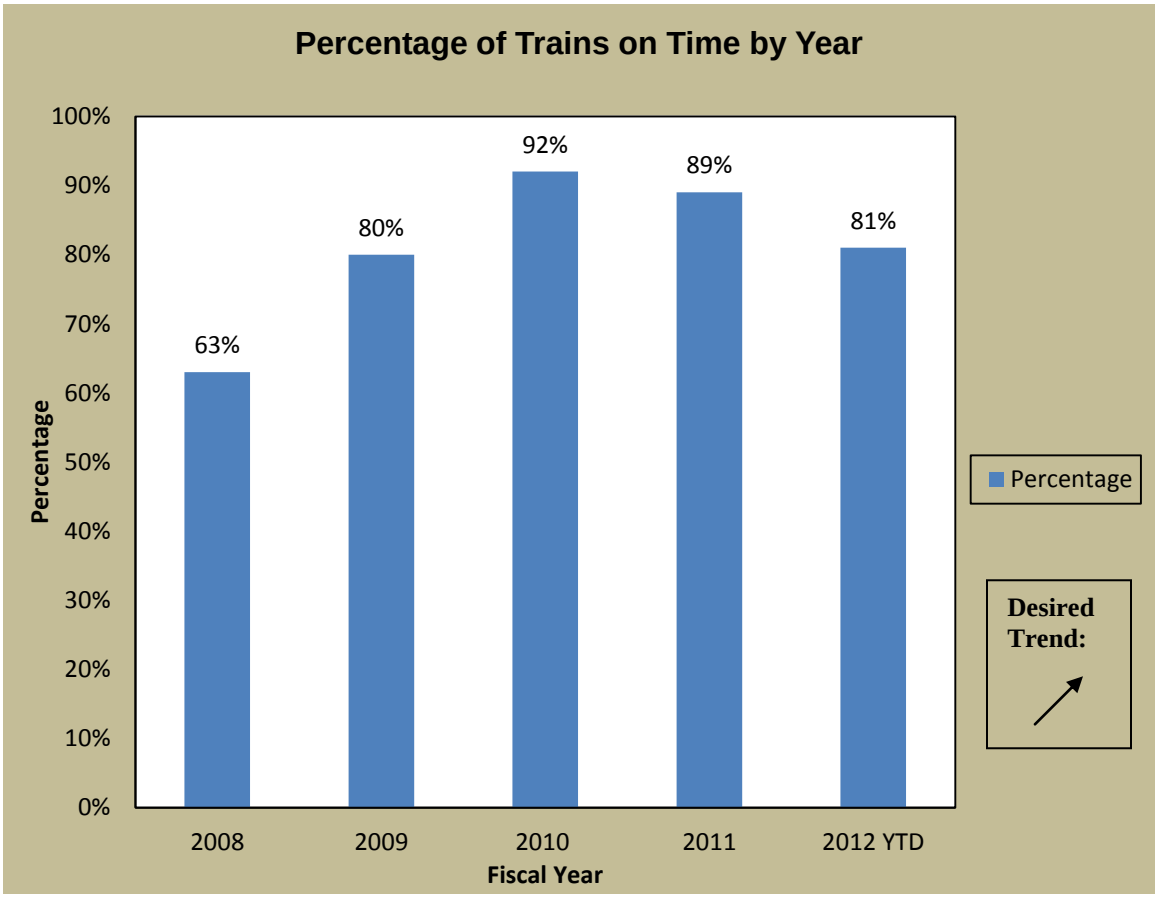
Percent of Amtrak Trains on Time

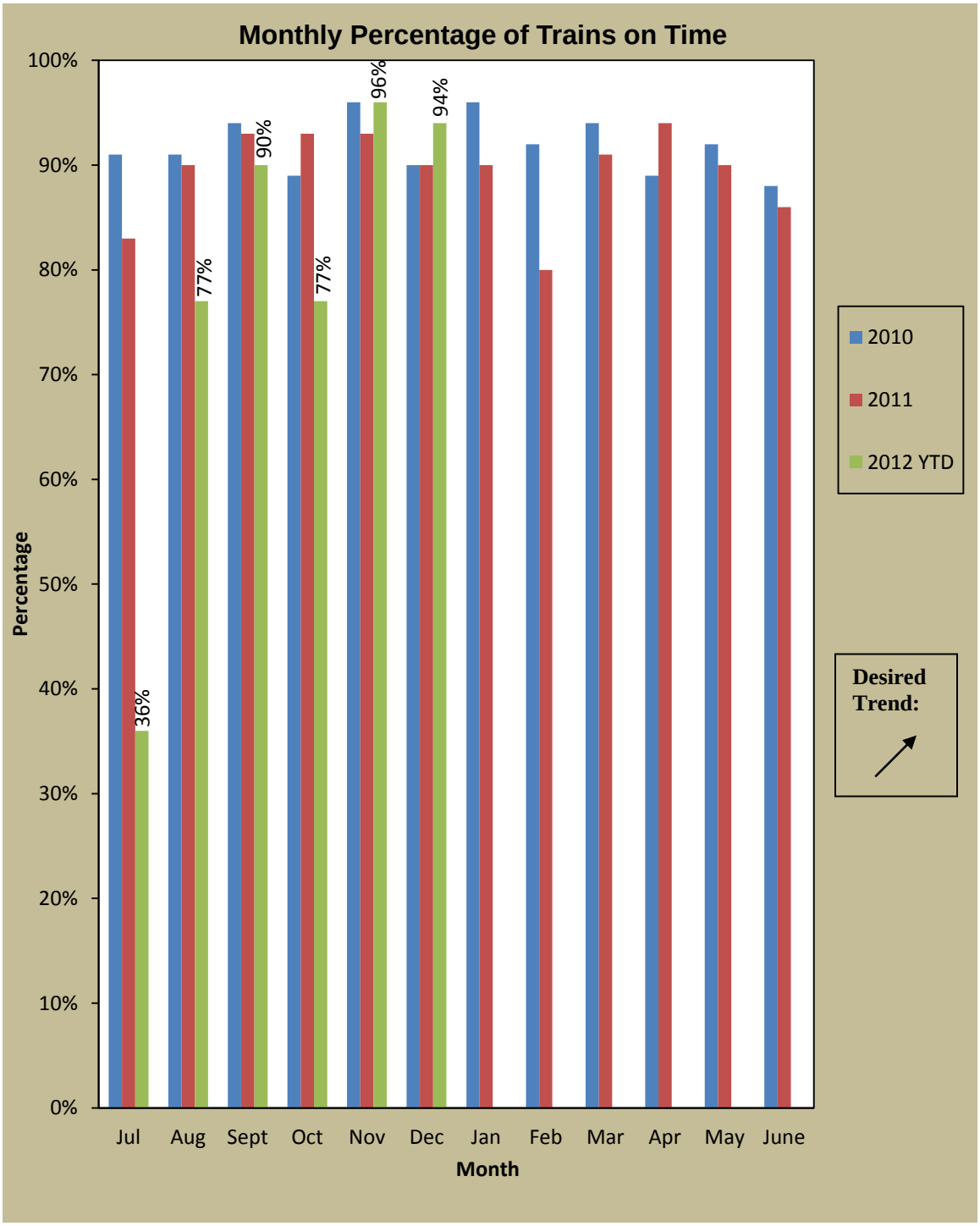
Result Driver: Eric Curtit, Administrator of Railroads
Measurement Driver: Kristi Jamison, Railroad Operations Manager

Purpose of the Measure:
This measure demonstrates the overall average percentage on-time performance of the Amtrak Missouri River Runner trains that provide service on the St. Louis to Kansas City rail passenger corridor.

Measurement and Data Collection:
"On time" means any train departing and arriving within 15 minutes of its departure time or scheduled arrival time. Data for this measure comes directly from Amtrak's on-time performance measures located on their web page.

Improvement Status:
The average on-time performance in the second quarter is 89 percent. OTP was 77 percent in October, followed by a significant improvement of 96 percent in November and 94 percent in December. Track maintenance that extended into the first eight days of October and freight train interference were two of the main factors causing delays that month. Year-to-date, on-time performance is 81 percent. Freight traffic is on a steady incline but the cooperation to keep Amtrak on time is being kept by both Amtrak and Union Pacific Railroad. UP, Amtrak and MoDOT continue to be in communication on a bi-weekly basis to discuss OTP for each week to discuss prevention of issues that lower OTP in order to prepare for the future.




Monthly Percentage of Trains on Time
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percentage
36%
77%
90%
77%
96%
94%
Jul
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
June
Month
2010
2011
2012 YTD
Desired Trend:

Easily Accessible Modal Choices

Percentage of General Aviation (GA) Airports with LPV (Lateral Precision With Vertical Guidance) Approach Procedure Minimums

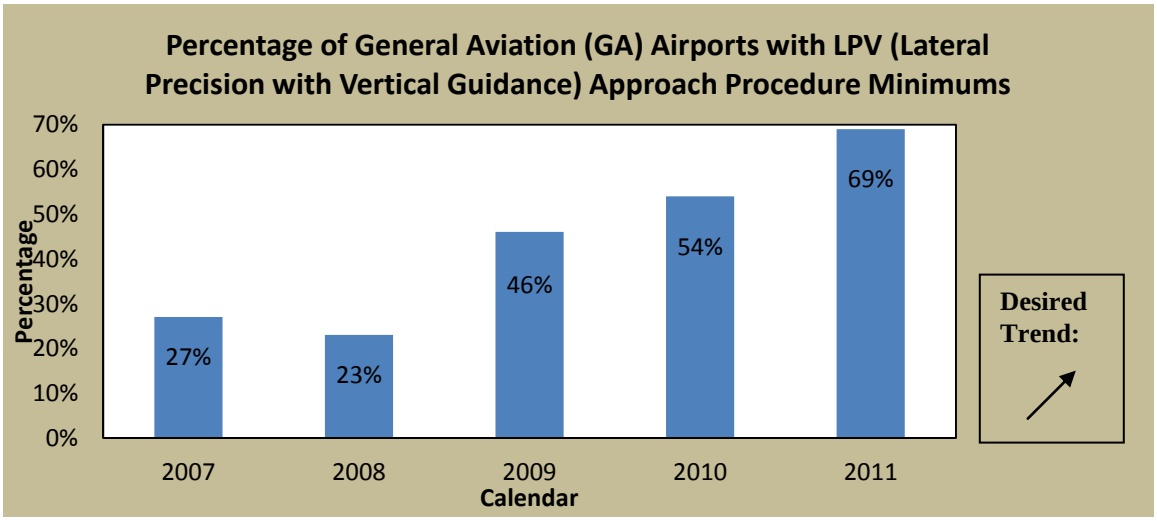
Result Driver: Mark Anderson, Aviation Operations Manager
Measurement Driver: Jim Goodrich, Department Pilot

Purpose of the Measure:
This annual measure tracks the number of airports that have at least one non-precision instrument approach procedure with LPV minimums. Non-precision approaches are a type of instrument approach procedure that provides access to airports in times of inclement weather. The lower the minimums, the better it is for the airport. LPV minimums, based on new GPS technology, provide the lowest possible minimums without any additional airport infrastructure. This is a national priority for the Federal Aviation Administration (FAA).

Measurement and Data Collection:
This information is gathered from the FAA Central Area Flight Procedures Office, FAA Airports Division, and FAA publications on an annual basis. 2007 is the base year. The data assesses 71 public-use GA facilities (excludes Kansas City Int'l, St. Louis – Lambert Int'l, Springfield-Branson National, Columbia Regional) having non-precision instrument approach procedures.

Improvement Status:
For the current reporting quarter, 69% of the 71 qualifying airports have LPV minimums as part of a non-precision instrument approach procedure. The continued growth is attributable to the funding of aeronautical surveys and infrastructure improvements by MoDOT and the FAA. For FY2011, two additional aeronautical surveys were funded. Eight new LPV approaches were delivered in calendar year 2011.

In order to continue the efforts of bringing LPV approaches to Missouri, Aviation initiated contracts over the past few years with consultants for aeronautical surveys as a way of increasing the number of LPV approaches to Missouri's GA airports.



Easily Accessible Modal Choices

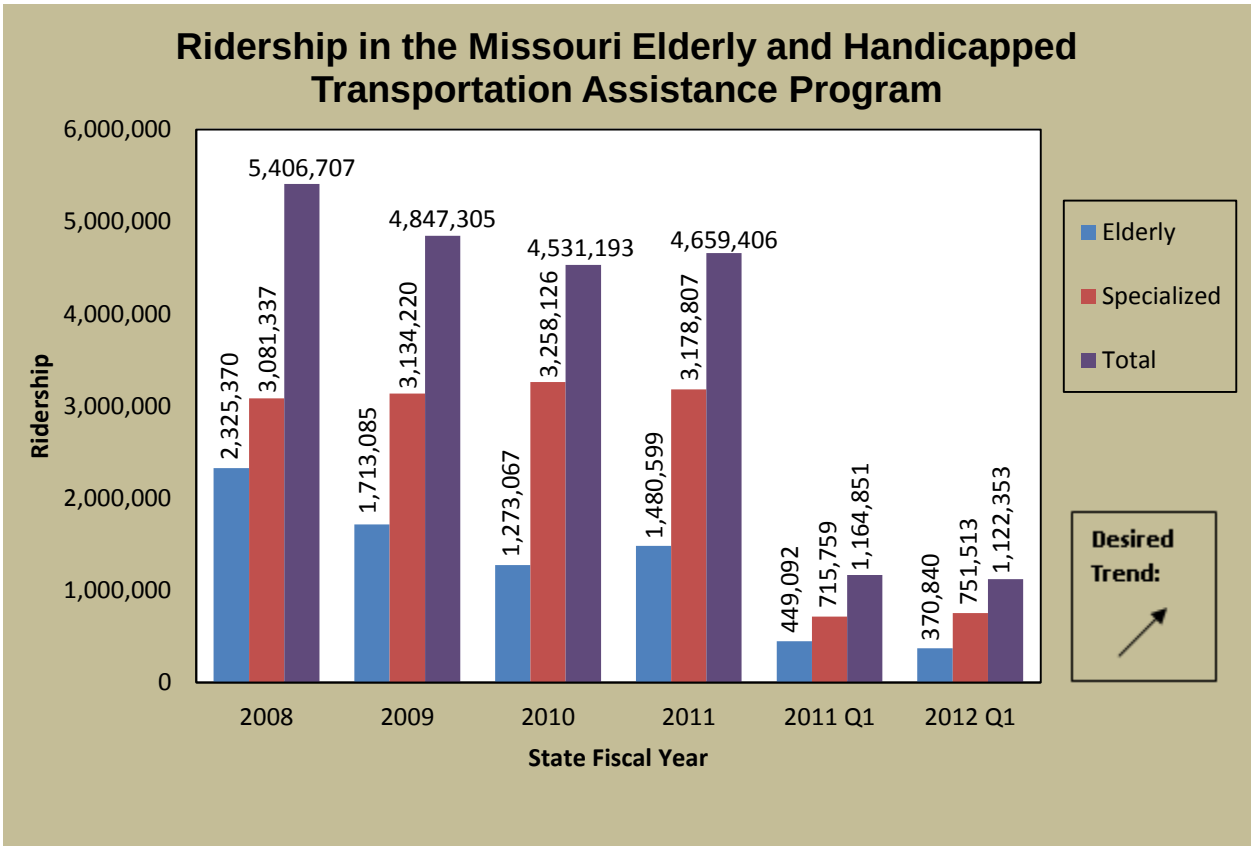
MEHTAP Program Ridership by Seniors and Persons With Disabilities

Result Driver: Steve Billings, Administrator of Transit
Measurement Driver: To Be Assigned

Purpose of the Measure:
This measure charts the ridership activities in the Missouri Elderly and Handicapped Transportation Assistance Program (MEHTAP). This data helps MoDOT track the frequency of rides taken by the senior and disabled communities that are served through MEHTAP grants. This data will help determine if funding allocations should be revised to better reflect observed usage.

Measurement and Data Collection:
The data for this measure is collected at on a quarterly basis, and updated the second following quarter. When recipients of MEHTAP funding submit their requests for payment, they are required to include the number of trips by elderly and handicapped, number of miles driven for that month, and have to further break down their trips by the type of trip (medical, employment, etc).

Improvement Status:
Through the first quarter (July – September, 2011) of SFY 2012, overall MEHTAP program ridership decreased 3.6% compared to the first quarter of SFY 2011. First quarter MEHTAP funded trips by senior citizens this year are down by 17%. However, trips provided to persons with disabilities in MEHTAP increased by 5% for the first quarter. The recent decrease in senior citizen utilization of MEHTAP funded mobility services is consistent with the decline as seen in the blue colored bars in the chart, below, for years 2008 – 2010.



Easily Accessible Modal Choices

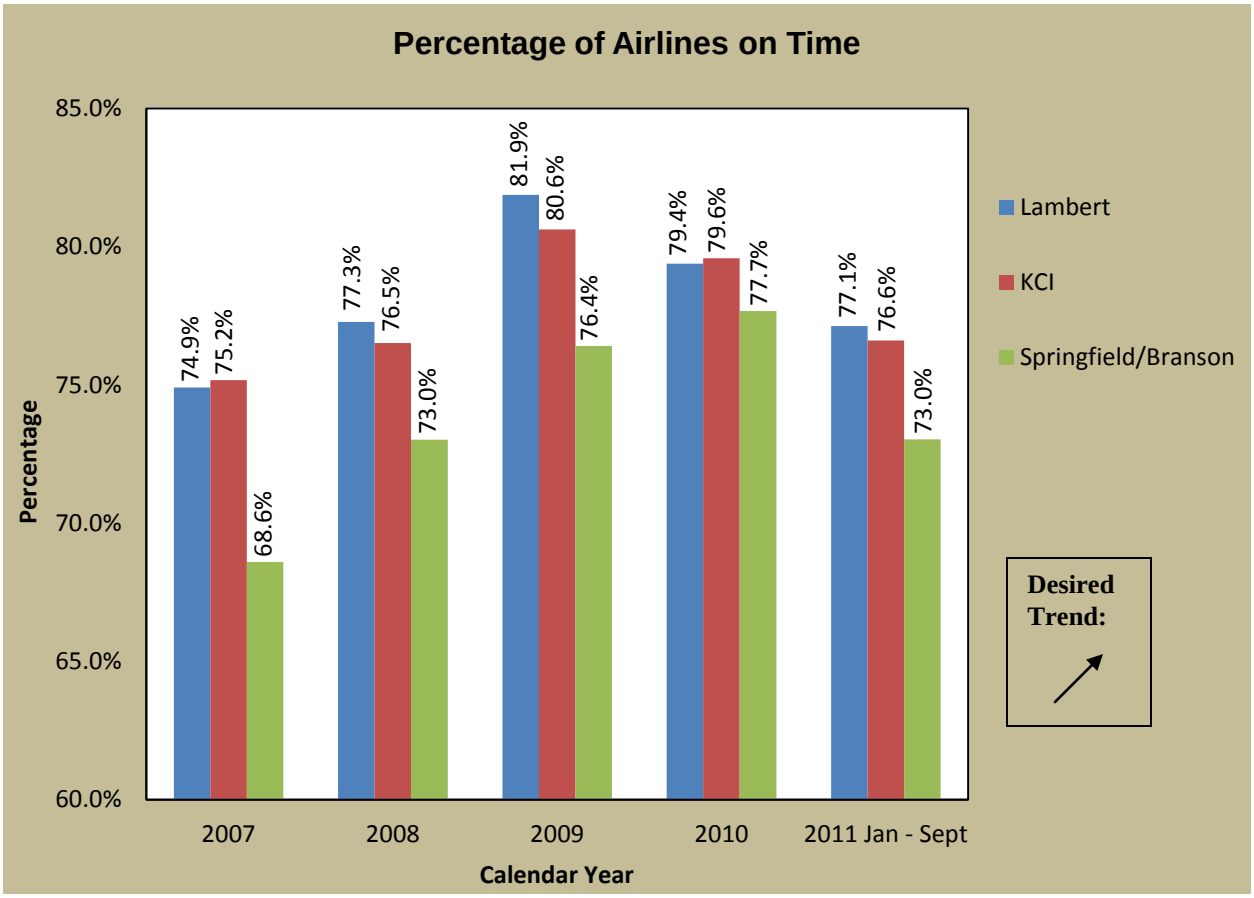
Percent of Airlines on Time

Result Driver: Multimodal Operations Aviation Administrator
Measurement Driver: Cindy Kever, Senior Administrative Technician

Purpose of the Measure:
This measure tracks the on-time performance of arrivals at the three commercial airports in Missouri that are eligible to receive federal aviation funds and include the Kansas City International Airport (KCI), St Louis International Airport (Lambert), and Springfield-Branson National Airport.

Measurement and Data Collection:
This data is extracted quarterly from the Research and Innovative Technology Administration (RITA) Bureau of Transportation Statistics website. Fourth quarter data will not available until next reporting period, so the data only reflects service for the first three quarters of the calendar year. For RITA's data collection purposes, a flight is considered delayed when it arrives fifteen or more minutes later than scheduled.

Improvement Status:
The overall decline in on-time performance for the first three quarters of 2011 can be attributed to increases in aircraft arriving late and national aviation system delays. Additionally, Kansas City also experienced elevated air carrier delays while St Louis experienced an increase in flight delays due to cancellations.



Best Value for Every Dollar Spent

Number of Audit Findings that Exceed 5% of Total Railroad Project Costs

Result Driver: Missy Wilbers, Rail Projects Manager
Measurement Driver: Jennifer Prenger, Senior Financial Services Technician

Purpose of the Measure:
This measure tracks the number of audit findings on railroad crossing projects which MoDOT is funding through state and federal funds that exceed 5% of total railroad project costs by Multimodal over the last six months. This is now an annual measure.

Measurement and Data Collection:
This information is gathered via reports submitted from MoDOT's Audits and Investigations Division and is completed after a crossing project file has been closed for a specified period of time.

Improvement Status:
The trend of decreasing the number of audit findings that exceed 5% of total railroad project costs by Multimodal is expected to continue as the number of "very old" projects go through the audit stage and the more recent audits of the past 2-3 years are processed.